

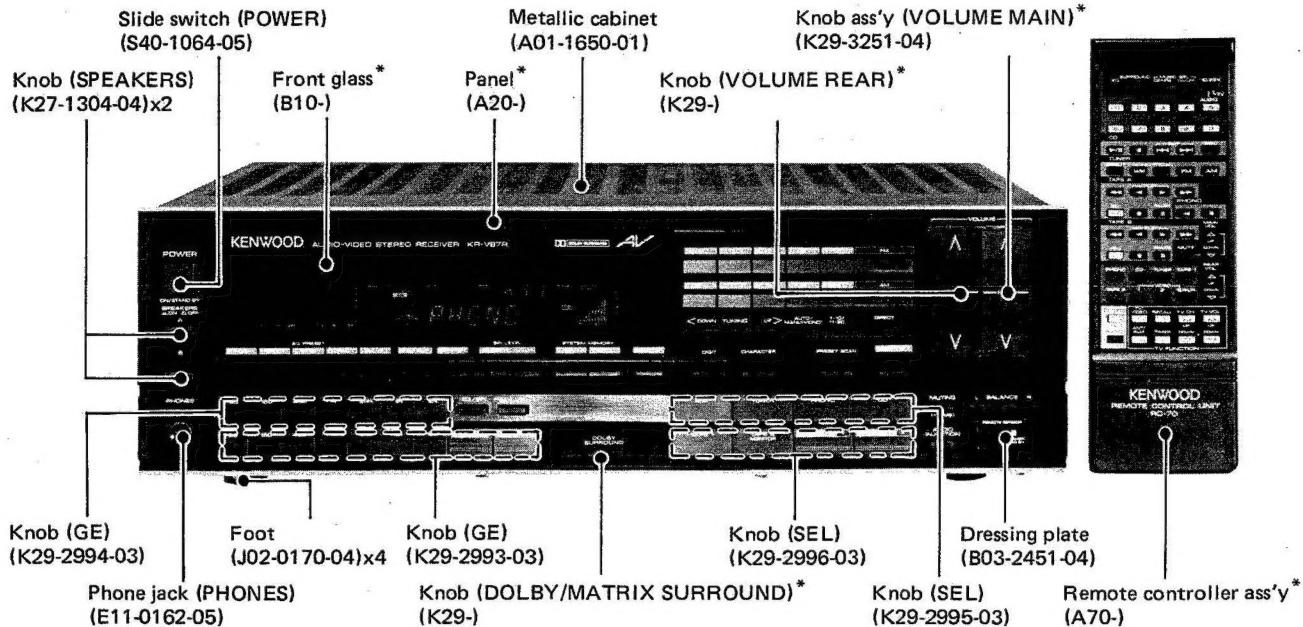
AUDIO-VIDEO STEREO RECEIVER

# KR-V87R

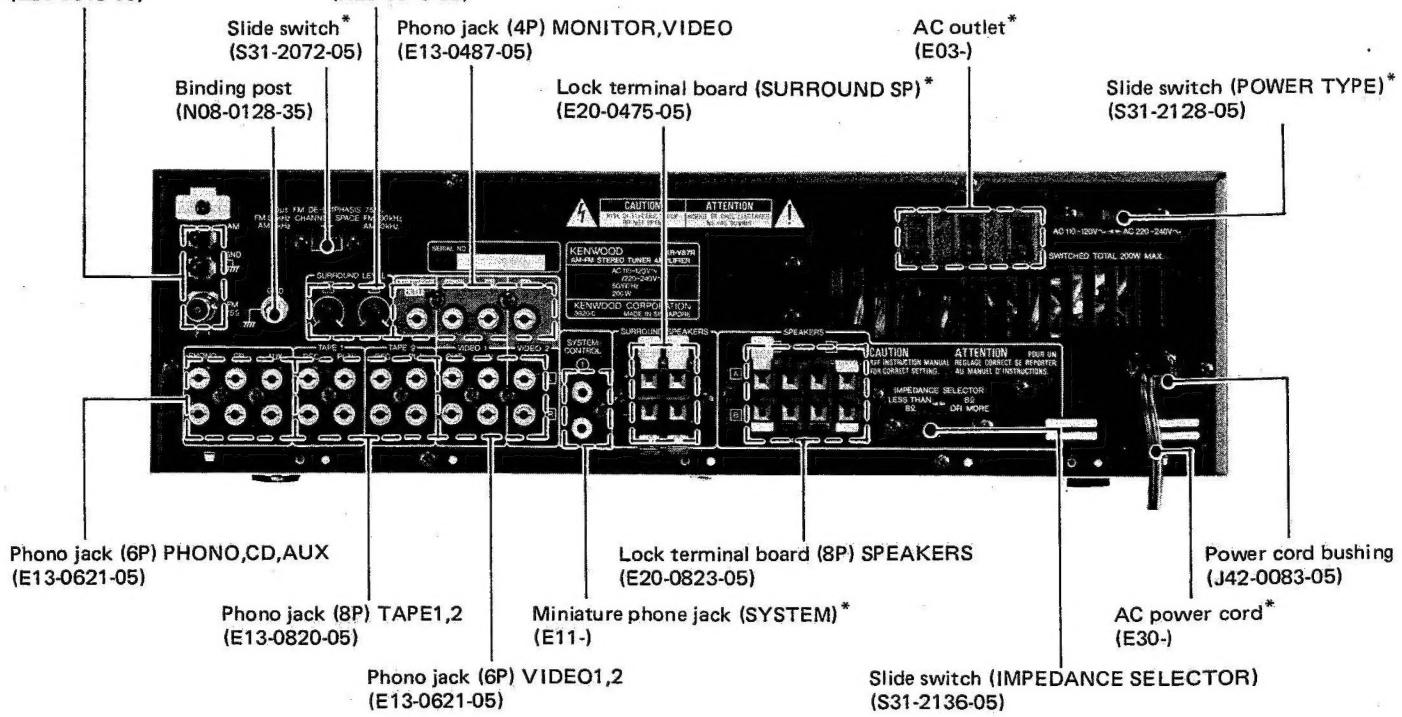
## SERVICE MANUAL

# KENWOOD

©1988-6 PRINTED IN JAPAN  
B51-3570-00 (O) 2549



Screw terminal board (2P) ANT: Potentiometer (SURROUND LEVEL)\*  
(E20-0318-05) (R29-5019-05)



\* Refer to parts list on page 51.

# KR-V87R

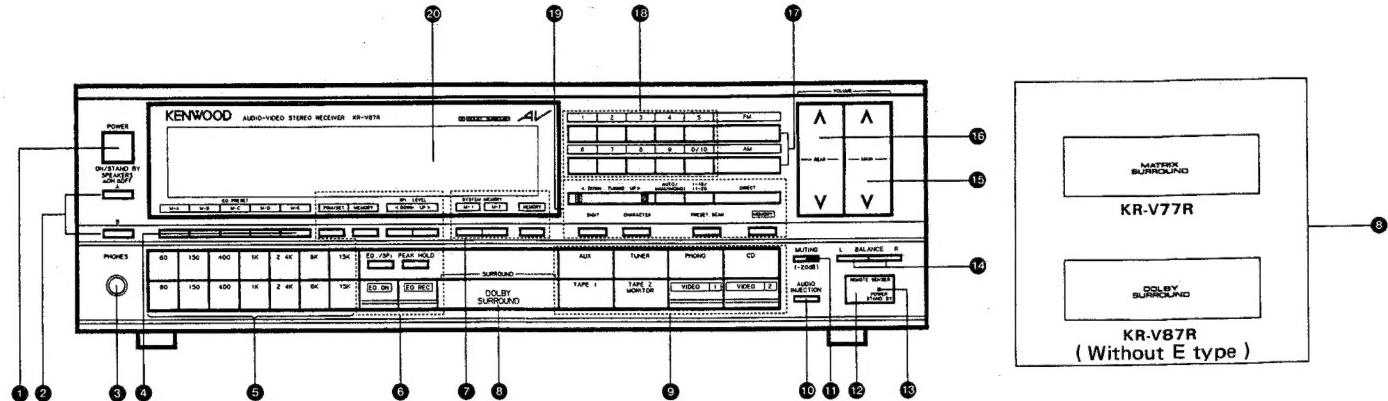
## CONTENTS/CONTROLS AND INDICATORS

### CONTENTS

CONTROLS AND INDICATORS .....	2
DISASSEMBLY FOR REPAIR .....	14
BLOCK LEVEL DIAGRAM .....	15
CIRCUIT DESCRIPTION	
Description of components .....	16
Microprocessor : $\mu$ PD75108CW-170 or -200 (X14-2320-10 : IC1) .....	18
ADJUSTMENT .....	24
REGLAGE .....	25

ABGLEICH .....	26
ADJUSTMENT/REGLAGE/ABGLEICH .....	27
VOLTAGE CHECK TABLE .....	28
PC BOARD (COMPONENT SIDE VIEW) .....	29
PC BOARD (FOIL SIDE VIEW) .....	33
CIRCUIT DIAGRAM .....	37
EXPLODED VIEW .....	49
PARTS LIST .....	51
SPECIFICATIONS .....	BACK COVER

### CONTROLS AND INDICATORS



#### ① POWER switch

Press this switch to turn on power. Press it again to turn power off.

#### ② SPEAKERS A and B switches

**A,B OFF** – This position silences all speakers to permit private use of headphones.

**A ON** – Activates speakers connected to the SPEAKERS A terminals on the rear panel.

**B ON** – Activates speakers connected to the SPEAKERS B terminals on the rear panel.

**A,B ON** – Activates speakers connected to the SPEAKERS A and B terminals simultaneously.

#### Note:

When the SPEAKERS A and B switches are used at the same time, the speakers connected to the SPEAKERS A and B terminals are connected in series. In this respect, whenever using the SPEAKERS A and B switches at the same time, be sure that two pairs of speakers are connected to the terminals A and B, otherwise no sound is output.

#### ③ PHONES jack

Stereo headphones are plugged into this jack.

#### ④ EQ (Equalizer) PRESET keys

Use these keys to store equalizer curves in memory or to recall them.

**PGM:** User-adjusted equalizer curves can be programmed as desired and stored in memory; up to five patterns.

**SET:** Five factory-preset equalizer curves are stored in memory.

Up to 10 equalizer curve memories are available in total. Press the PGM/SET key to select either the user-programmed pattern or the factory-preset pattern.

#### ⑤ Equalizer level controls

Adjust these controls up and down to equalize the sound by  $\pm 12$  dB to the center frequency indicated.

#### ⑥ Equalizer function keys

##### ● Equalizer preset mode key (PGM/SET)

Each time this key is pressed, the recall mode of the equalizer preset curves alternates between PGM (user-programmed patterns) and SET (factory preset patterns).

##### ● Equalizer preset MEMORY key

This key is used to store an equalizer curve into the PGM PRESET memories. First, select the desired equalizer curve and then press this key. Then press any of the PRESET (A to E) keys. The selected equalizer curve will be stored in the memory indicated by the PRESET key pressed.

# CONTROLS AND INDICATORS

## ● SPI. LEVEL control keys (KR-V87R)

These control keys are used to adjust the display level of the spectrum analyzer display. Press the UP side of the key to increase the display level, and press the DOWN side to decrease it.

## ● EQ/SPI key (KR-V87R)

Pressing this key alternates the display mode between the EQ (graphic equalizer) and SPI (spectrum peak indicator.)

## ● PEAK HOLD key (KR-V87R)

In the spectrum peak indicator (SPI) mode, pressing this key activates or deactivates the Peak Hold function of the spectrum peak indicator.

## ● Equalizer (EQ, ON) key

Press this switch to ON and the frequency characteristic will be modified by passing through the graphic equalizer. In the DEFEAT position, the frequency characteristic remains unchanged.

## ● EQ REC key

Used when recording the source onto the tape deck through the equalized response of the graphic equalizer.

## ⑦ System memory keys

### ● SYSTEM MEMORY channel key (M-1/M-2)

Two groups of memory can be used with the preset channel key of the System Memory system. After entering the memory preset mode by pressing the SYSTEM MEMORY key, press the M-1 or M-2 key.

## ● System MEMORY key

This key is used to store the currently playing condition in memory.

## ⑧ DOLBY SURROUND key (KR-V87R without E type)

Press this key to activate or deactivate the surround output. In the KR-V87R, DOLBY surround mode is automatically entered when this key is pressed. In the KR-V77R, MATRIX surround mode is automatically entered when this key is pressed.

With the KR-V77R, when the speaker selector switch at the rear is set to 8Ω OR MORE, the surround mode cannot be obtained.

## ⑨ Input selector switches

**TAPE 1** – Press this switch to play back a tape deck connected to the TAPE 1 jacks.

**TAPE 2/MONITOR** – Press this switch to play back a tape deck connected to the TAPE 2 jacks. (The TAPE 2 switch is operated in priority to any other audio input systems.)

**VIDEO 1** – Selects the video recorders connected to the VIDEO 1 jacks.

**VIDEO 2** – Selects the video recorders connected to the VIDEO 2 jacks.

**CD** – Selects the source connected the CD jacks.

**PHONO** – Selects the program source played on the turntable.

**TUNER** – Selects the tuner mode.

**AUX** – Selects the source connected the AUX jacks.

## ⑩ AUDIO INJECTION key

Press this key ON when replacing the sound of VIDEO 2 with that of AUDIO source is required on dubbing between VIDEO sources.

## ⑪ MUTING key

When the muting key is pressed, the MUTING indicator in the display window will flash, and the overall listening sound level is reduced.

When the key is pressed again, you can restore exactly the same listening level as before.

## ⑫ REMOTE SENSOR

Point the supplied remote control unit towards this sensor and operate.

## ⑬ REMOTE POWER STAND BY indicator

This indicator lights so far as the power cord is plugged into the AC outlet. It is lit to show that the POWER switch on the front panel or the POWER key on the remote control unit can be activated.

## ⑭ BALANCE control key

Governs the amount of sound coming from each paired speakers to get optimum stereo effect. Pressing the RIGHT key will decrease the left channel volume and pressing the LEFT key will decrease the right channel volume. When the BALANCE controls is pressed, display window shows the BALANCE indicator.

## ⑮ MAIN VOLUME control key

This control adjusts the left- and right-channel volumes simultaneously. Set it for the desired listening level. Pressing the up (▲) side increases the volume and pressing the down (▼) side decreases it.

Indicator (▲) or (▼) blinks when this unit is operated directly or with the remote control unit.

The volume level of the rear speakers are controlled at the same time.

## ⑯ REAR VOLUME control keys (KR-V87R)

Adjusts front/rear balancing when surround speakers are used. The control range is ±20 dB of the front speaker level. (Without E type)

## ⑰ Band selector switches

**FM** – For FM broadcasts.

**AM** – For AM broadcasts.

## ⑱ Numeric (1 ~ 0/10) keys

Use these keys to:

- 1) input directly the digits of frequencies, or
- 2) store and recall frequencies in the preset channel.

## ⑲ Tunning function keys

### ● DIGIT key

In the station name input mode, pressing this key advances the column after selecting the character with the Tuning UP/DOWN key. When this operation is repeated four time, the station name input mode will be released automatically.

## ● CHARACTER key

Press this key to activate the station name input mode.

# CONTROLS AND INDICATORS

## ● PRESET SCAN key

Use this key for preset channel scanning.

When a frequency stored in the preset memory is being received, pressing this key shifts the reception to the next frequency stored in the preset memory. (The preset channels are scanned in the order 1, 2, ..., 11, 12, ..., 20.) To stop a scanning operation, press the SCAN key again.

## ● MEMORY key

When the input mode is TUNER, use this key to store new broadcast station data in the preset channel memory. By pressing the MEMORY key, setting the preset channel to 1-10 or 11-20 and by pressing one of the numeric keys, the frequency being received is stored in the memory in the numeric key pressed.

## ● DIRECT key

Used to tune to the station directly. Input the desired frequency numerics with the numeric keys after pressing the DIRECT key.

## ● Preset function (1-10/11-20) key

Used to select 1-10 or 11-20 setting for the preset channel. In either FM or AM mode, 20 stations can be preset as random as each setting ("1-10" or "11-20") can contain 10 preset stations. Indicator "1-10" lights when "1-10" setting is used, and indicator "11-20" lights when "11-20" setting is used.

## ● AUTO/MANUAL (MONO) key

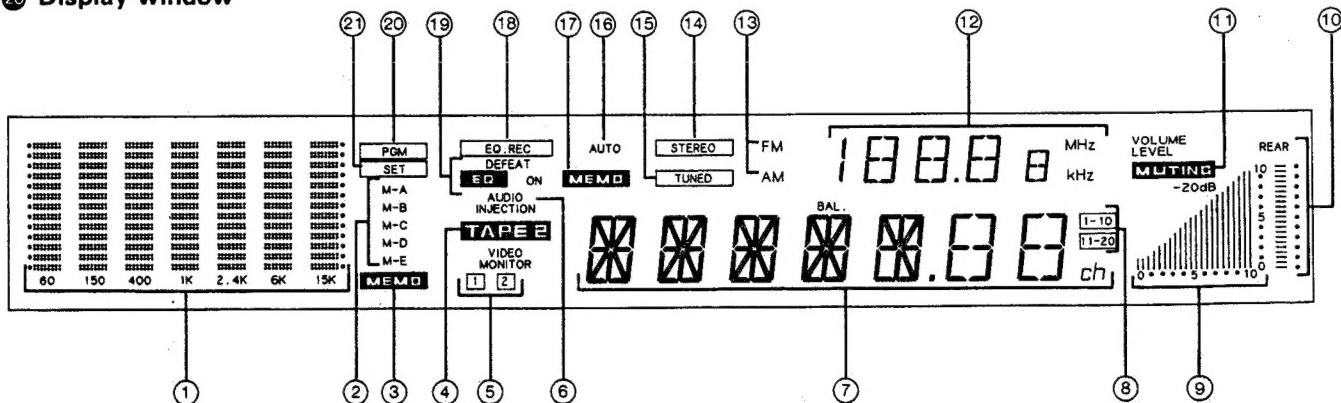
When this key is pressed, the AUTO indicator will light. The frequency will automatically stop at a station in automatic tuning mode. When a stereo broadcast is received, the output sound is automatically changed to stereo.

## ● TUNING keys

Used to change the frequency. Pressing UP side will advance to the higher frequency and pressing DOWN side to the lower frequency.

In the station name input mode, this key is used to select the character.

## ⑩ Display window



- ① In graphic equalizer mode, displays the equalizer level display, the music spectrum analyzer display and peak hold display.
- ② Displays when storing or recalling equalizer preset channel in memory.
- ③ Lights when the Memory (EQ) key is pressed to store the desired equalizer curve.
- ④ Lights when the TAPE-2 key is pressed.
- ⑤ VIDEO monitor out indicator.
- ⑥ Lights when the AUDIO INJECTION key is pressed.
- ⑦ This displays the input mode, preset channel, station name, front volume level, rear level, balance, DOLBY surround (KR-V87R), EQ preset channel, SPI level (KR-V87R), system memory indicator.
- ⑧ "1-10" or "11-20" lights according to the selection of the preset function keys.
- ⑨ Front volume level indicator  
This indicator displays the volume level for the front-channel speakers.

- ⑩ Rear volume level indicator (KR-V87R)  
The volume level of the rear-channel speakers is indicated within a  $\pm 20$  dB range.
- ⑪ Flashes when the MUTING key is pressed.
- ⑫ Displays the digital frequency display.
- ⑬ Displays the tuner band "FM" or "AM".
- ⑭ In tuner mode, lights when a stereo broadcast is tuned in.
- ⑮ In tuner mode, lights when a station is tuned in.
- ⑯ Lights during auto tuning.
- ⑰ Lights when the MEMORY key is pressed.
- ⑱ This indicator lights when EQ REC (equalizer recording) key is pressed.
- ⑲ Lights when the Equalizer (EQ. ON) key is set to "ON".  
Lights when the Equalizer (EQ. ON) key is set to "DEFEAT".
- ⑳ Lights when the Equalizer preset mode (PGM/SET) key is set to "PGM".
- ㉑ Lights when the Equalizer preset mode (PGM/SET) key is set to "SET".

# CONTROLS AND INDICATORS

## ■ Listening to AM/FM

1. Press the Power switch to ON.
2. Press the TUNER key of the input selector.
3. Select FM or AM of the band (FM/AM) selector.
4. Tune to the required station with following procedures: Auto tuning, Manual tuning or Direct tuning.

### Auto tuning

1. Press the AUTO/MANUAL (MONO) key to set to "AUTO".
2. Press the UP or DOWN TUNING key: The frequency will automatically increase or decrease until a station with sufficient signal level is received. To stop the frequency scanning before a station is received, press the AUTO/MANUAL key to set to "MANUAL".
3. Adjust the VOLUME control to the required listening level and use the graphic equalizer control to adjust the sound to your own preference.

### Manual tuning

1. Press the AUTO/MANUAL (MONO) key to set to "MANUAL".
2. Press the UP/DOWN TUNING key to tune in the desired station.  
To continuously increase or decrease frequencies, hold the TUNING key depressed.
3. Adjust the VOLUME control to the required listening level and use the graphic equalizer control to adjust the sound to your own preference.

### Direct tuning

1. Select FM or AM with the FM, AM selector switch.
2. Press the DIRECT key.
3. Input the desired frequency with numeric keys.
4. The receiver enters the radio reception mode just after the frequency value has been input.  
(If the input value is outside the tuning range, the frequency display flashes for 5 seconds and the receiver returns to the radio reception mode of the last channel.)

## ■ Presetting broadcast station data

In total up to 20 stations data (station frequency and station name) can be stored in memory.

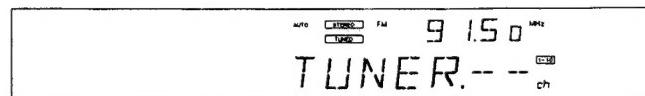
1. Select the desired station with either AUTO tuning, MANUAL tuning or DIRECT tuning.
2. Input the broadcast station name in accordance with the character input procedure.  
For the broadcast station names, up to 4 characters can be input.
- When the contents in item 2 is not required for display memory, proceed to item 3 after item 1.
3. Press the preset function key to select "1-10" or "11-20".
4. Press the MEMORY key. (The MEMORY indicator lights.)
5. Press one of the numeric keys: The frequency being tuned in and the station name are stored.

### Character input procedure

1. Press the CHARACTER button to set the character input mode. The first column of the character display section begins flashing.
2. Press the TUNING UP/DOWN key to select the character.
3. When the desired character is displayed, press the DIGIT key.  
Flashing will shift to the next column.
4. Repeat procedure 3 and 4 for four times to complete inputting. The character input mode will be released.
- Even in the middle of inputting, pressing the CHARACTER key again will release the character input mode. At this time, the data which has been input is valid.

**Example 1:** To preset the 91.50 MHz FM broadcast and a station name "W N Y" when the station other than the preset channel memories is received.

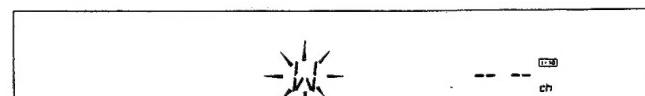
1. Tune to 91.50 MHz FM broadcast.



2. Press the CHARACTER key.



3. Press the TUNING UP key twenty-three time to select "W".  
A→B→C→D→E→F→G→H→I→J→K→L→M→N→O→P→Q→R→S→T→U→V→W



# KR-V87R

## CONTROLS AND INDICATORS

4. Press the DIGIT key.

5. TUNING UP key fourteen times to select "N".  
A→B→C→D→E→F→G→H→I→J→K→L→M→N

6. Press the DIGIT key.

7. TUNING UP key twenty-five times to select "Y".  
A→B→C→D→E→F→G→H→I→J→K→L→M→N→  
O→P→Q→R→S→T→U→V→W→X→Y

8. As the fourth column should be left blank, press the DIGIT key twice or press the CHARACTER key.

9. Press the MEMORY key.

10. Press channel 2 of the preset channels

**Example 2:** To change the station name from "WHY8" for 810 kHz AM broadcast memorized in 12 preset channel to "W, G, Y".

1. Recall the 12 preset channel with the PRESET 1-10/11-20 switch and the PRESET-key according to "Recalling the Preset Memory".

2. Press the CHARACTER key.

3. Press the DIGIT key to shift the flashing character to the next column since the first character "W" should be left as it is.

4. Press the TUNING (DOWN) key to select "G".  
H→G

5. Press DIGIT key twice.

6. Press the TUNING key to select a blank.

7. Press the DIGIT key or press the CHARACTER key.

8. Press the MEMORY key.

9. Press channel 12 of the preset channels.

## CONTROLS AND INDICATORS

### ■ Listening to a preset station

1. Press the preset function key to select "1-10" or "11-20".
2. Press a numeric key under which memory has been preset.
3. Adjust the VOLUME control to the required listening level and use the graphic equalizer control to adjust the sound to your own preference.

### ■ Listening to record playing

1. Press the PHONO key of the INPUT SELECTOR switches.
2. Operate the turntable to play back a record.
3. Adjust the VOLUME control to the required listening level and use the graphic equalizer control to adjust the sound to your own preference.
- With a turntable that is connected to this unit with a System Control cord, the convenient System Control operations are available. For details on this, refer to "System Control Operation" on page 20.

### ■ Listening to the program source connected to the CD or AUX jacks

1. Press the CD or AUX key of the input selector switches.
2. Operate the component connected to the CD or AUX jacks.
3. Adjust the VOLUME control to the required listening level and use the graphic equalizer controls to adjust the sound to your own preference.
- With a CD-player that is connected to this unit with a System Control cord, the convenient System Control operations are available. For details on this, refer to "System Control Operation" on page 20.

### ■ Tape deck operation

1. Press the appropriate TAPE key of the input selector switches (1 or 2) to select output from a tape deck connected to the TAPE 1 or 2 jacks.
2. Operate the tape deck.
3. Adjust the VOLUME control to the required listening level and use the graphic equalizer controls to adjust the sound to your own preference.
- With a tape deck (connected to the TAPE 1 jacks) that is connected to this unit with a System Control cord, the convenient System Control operations are available. For details on this, refer to "System Control Operation" on page 20.

**Note:**

When both key (TAPE-1 and TAPE-2) are pressed, TAPE-2 setting has priority.

### Recording

1. Press the appropriate key of the INPUT SELECTOR switches.
2. Set up your tape deck(s) for recording and set the recording level with the controls on your tape deck(s).
3. Adjust listening level at the unit to suit your listening preference.

**Note:**

When a tape deck is connected to this unit with a System Control cord, all of the input selector switches are disabled during recording and do not function until recording is finished. This will prevent the recording from being interrupted.

### Tape dubbing

Tape recordings may be duplicated (dubbed) easily using two tape decks connected to the TAPE 1 and 2 jacks.

**For example:**

(TAPE 1 to 2):

1. Connect two tape decks to the TAPE 1 and TAPE 2 jacks
2. Press the TAPE 1 switch.
3. Play back the recorded tape and adjust the recording levels before starting tape dubbing.

**(TAPE 2 to 1):**

1. Press the TAPE 2 switch.
2. Press a key except TAPE 1 of the INPUT SELECTOR switches such as AUX.
3. Play back the recorded tape and adjust the recording levels before starting tape dubbing.
4. Do not press the TAPE 1 switch during recording with tape deck 1.

**Note:**

Adjust record levels on the deck that is making the copy using that deck's operating controls.

# CONTROLS AND INDICATORS

## ■ VIDEO deck operation

### Listening to video recorder audio sound

1. Press the appropriate VIDEO (1, 2) key of the INPUT SELECTOR to select output from a video recorder connected to the VIDEO (1, 2) jacks.
2. Operate the video recorder.
3. Adjust the VOLUME controls for your preference.
4. When a video monitor is connected to the VIDEO MONITOR OUT jack on the rear panel, the picture from the recorder can also be monitored.

### Dubbing between two VCRs

Video dubbing can be performed while listening to any desired source.

With this set, through dubbing from **VCR 2** to **VCR 1** is possible.

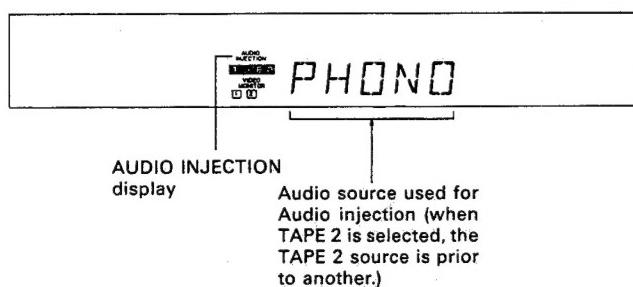
To operate, set the **VCR 1** video deck to record-pause mode and set the **VCR 2** video deck to playback mode. At the same time as the **VCR 2** video deck starts to play, the record-pause mode of the **VCR 1** video deck is released and recording starts.

### Audio injection

During video dubbing, the sound from the VCR can be replaced with the desired audio source without affecting the picture.

At this, graphic equalizer can be applied to the recording audio source.

1. Press the AUDIO INJECTION switch so that the "AUDIO INJECTION" display is illuminated.
2. Select the desired audio source for Audio injection with the INPUT SELECTOR.
3. When equalizer compensation is required when recording a desired audio source with audio injection ON, press the EQ.REC key.
- The **EQ REC** indicator lights up.
- Set the equalizer controls as desired.
4. Operate each VCR for dubbing.



## ■ Graphic equalizer operation

### Normal operation

1. Select the desired source.
2. Press the equalizer (EQ. ON) key to ON.
- The **EQ** ON indicator lights up in the display window.
3. Press the equalizer level control UP DOWN keys so that the equalized sound is heard from the speakers as desired.

### Preset procedure

Use EQ PRESET key to store equalizer curves in memory or to recall them. (Five different equalizer curves can be stored.)

1. Select the desired source.
2. Press the equalizer (EQ. ON) key to ON.
3. Set the your desired equalizer curve.
4. Press the MEMORY (EQ) key.
5. Press the desired EQ PRESET keys (M-A~M-E) to store the equalizer curve.

### Preset operation

The preset memory of this unit is available in two types the "PGM" memory in which the user-created desired sound response can be preset, and the "SET" memory in which the factory-preset sound equalizer curves are prepared. Use them by referring to "Characteristics of the SET preset memories".

1. Select SET or PGM.
- The previously selected equalizer curve of the preset channel is displayed.
2. Select preset key

### Characteristics of the "SET" preset memories

- A: For solid and punchy sound.
- B: For effective reproduction of the dynamic movie sound.
- C: For easy to listen background music.
- D: For musical sound reproduction in a sense of lively
- E: For reproducing the vocal music realistically.

### EQ REC switch

Press this switch, signals will allow equalized to be recorded on TAPE 1. If you wish to record non-equalized signals with the equalizer switch in the ON position, turn the equalizer recording switch to OFF. This will allow you to hear the equalized signals while recording non-equalized signals.

#### Note:

The equalized signal is not output at TAPE 2 REC jacks.

## CONTROLS AND INDICATORS

### ■ Surround operation

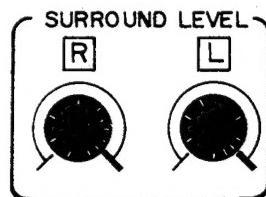
#### DOLBY SURROUND (KR-V87R without E type)

1. Set the SURROUND key to ON.
- The DOLBY SURROUND indication which is marked on the key lights.
- The input selector on the display window shows "DOLBY" for about 5 seconds.



2. Select the source which is desired to be expected for Dolby-surround sound effect, and play it.
3. Adjust the volume control and balance between the front speakers and the rear speakers by controlling the MAIN and REAR VOLUME control key.
- The MAIN VOLUME control allows you to increase or decrease the volume level for both the front and rear channels simultaneously.
- The REAR VOLUME control range is  $\pm 20$  dB of the frontspeaker level.

The SURROUND LEVEL controls located on the rear panel are set to its maximum position normally. However, if the left/right balance is shifted incorrectly, first set the SURROUND mode to the DOLBY position and reproduce the monaural source to adjust so that no sound is heard from the rear speakers.



MANUFACTURED UNDER LICENSE FROM DOLBY LABORATORIES LICENSING CORPORATION. ADDITIONALLY LICENSED UNDER ONE OR MORE OF THE FOLLOWING PATENTS: U.S.NUMBERS 3,632,886, 3,746,792 AND 3,959,590; CANADA NUMBERS 1,004,603, AND 1,037,877. "DOLBY" AND THE DOUBLE-D SYMBOL ARE TRADEMARKS OF DOLBY LABORATORIES LICENSING CORPORATION.

## CONTROLS AND INDICATORS

### ■ System Memory

The required playback condition can be stored in memory for each music program (tape, compact disc, phonograph record (disc) or broadcasting program), so that the same volume level, the same balance (between front and rear channels), and the same equalizer pattern, etc. can be recalled at any time instantly.

Two types of settings can be stored in memory, and by pressing the SYSTEM MEMORY (M-1 or M-2) key you can recall the preset sound field condition instantly.

#### **Stored contents:**

The stored contents in the System Memory are as follows:

- Input selector (CD, PHONO, TUNER, TAPE, VIDEO, etc.)
- Preset channel in the TUNER position
- Audio injection
- EQ. key setting (ON/DEFEAT)
- EQ. REC key setting (ON/OFF)
- Preset channel of the equalizer pattern
- SURROUND setting (ON/OFF)
- Front-channel volume level
- Rear-channel volume level (KR-V87R)
- Front-channel balance control setting

#### **How to preset the System Memory:**

1. Set the playback conditions as required.
  - When selecting the tuner or equalizer, be sure to designate the preset channel.
  2. Press the SYSTEM MEMORY key.
  - The display shows "SYS M-" for about 5 seconds.
  - When "SYS M" is blinking in the display, the tuner or equalizer pattern is not preset in memory.
- After presetting the playback condition for each channel, press the MEMORY key again.

#### **How to recall System Memory:**

1. Press the M-1 or M-2 key.
- The display shows "SYS M-1" or "SYS M-2" for about 1 second, and the settings of each section are changed to the preset contents.
2. Readjust the setting of each section as required.
- When PHONO is selected for the input selector, with a system-controlled turntable connected, the turntable will automatically start playing by recalling the System Memory. Therefore, be sure to set the record on the platter of the turntable before activating the System Memory function.
- In the same way, when a system-controlled tape deck or CD player is connected to this unit, the tape deck or CD player can be started automatically by activating this System Memory function.

#### **Note:**

1. Do not set the volume controls to an excessively high volume level. It may not only astonish the listener, but it may also damage the speaker or amplifier.
2. If the contents of the preset channel is changed after designating the tuner or equalizer section channel for System Memory, the contents of the System Memory channel will also be changed.

### ■ System control operation

#### **Connection**

Using the system control cord provided with the system component models as below, make connections as shown on page 7.

**The following models are available for the system control operations.**

**Turntable:** KD-77F, KD-67F or KD-47F

**Cassette deck:** KX-97CW, KX-77CW

KX-67W or KX-87CR

**CD player:** DP-87, DP-57, DP-47, DP-M107R,  
DP-M97 or DP-M97R

#### **Note:**

Some models provide two or three system control jacks. However, when used with this receiver, be sure to connect the system control cord to the jack having a indication of ①.

### Operation

#### **1. Automatic play operation**

When starting play with the turntable, cassette deck or CD player connected to the receiver, press the desired INPUT SELECTOR switch on the receiver. The turntable, cassette deck or CD player will automatically enter the play mode.

In the same way, pressing the Play key of the turntable, cassette deck or CD player will automatically switch the INPUT SELECTOR on the receiver to the equipment on which the Play key is pressed.

#### **2. Synchro recording**

To record the sound from the turntable or CD player onto the tape with the cassette deck, press the PLAY (START) key of the turntable or CD player. The cassette deck will start recording automatically, synchronized with the turntable or CD player starting play. For more details, refer to the instruction manual of the cassette deck.

#### **3. Remote control**

When the remote control unit provided with this unit, to which the turntable, cassette deck or CD PLAYER is connected, is equipped with related control keys, the related components can be controlled using these keys.

#### **Note:**

During recording with the cassette deck, the INPUT SELECT on the receiver is fixed at the source from which the recording is made, by the system control circuit. At this time, pressing any of the INPUT SELECTOR keys does no function even when it is pressed.

# CONTROLS AND INDICATORS

## Operations

1. Connect the power plug of this unit to an AC outlet.
- This main frame enters the power standby mode and the POWER STANDBY indicator lights.
2. Press the POWER key of remote control unit or the POWER switch of this unit.
- This unit enters the power ON mode.
3. Operates with the keys of remote control unit.

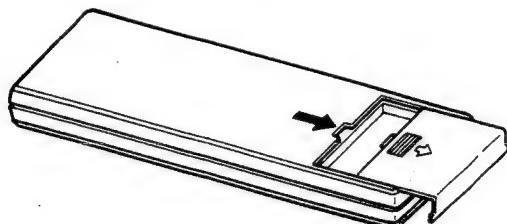
### Note for remote control operation

After pressing one of operation keys, when the next operation is required, press the next operation key firmly after approx. 1 second interval.

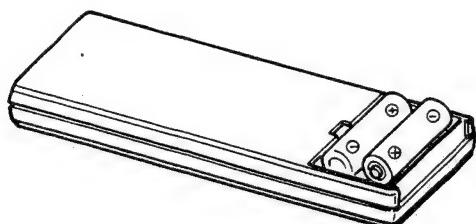
When the next operation key is pressed immediately after the previous key, it may cause misoperation.

## Installing the battery on the remote control unit

1. Remove the battery compartment cover.



2. Insert two size "AA" (R6) batteries confirming the correct polarity and close the cover in its place.



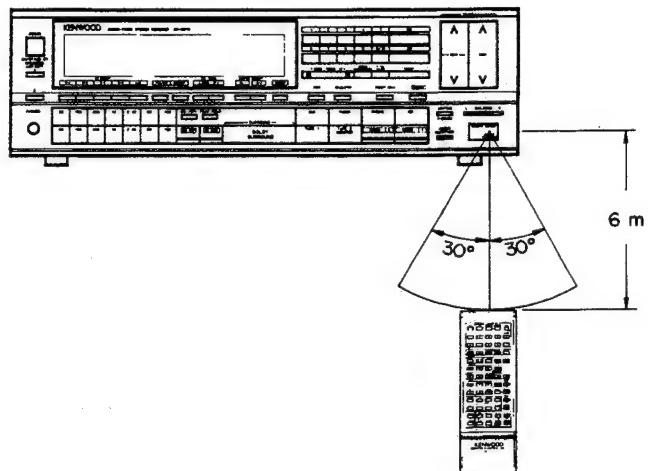
### Note:

The provided batteries are to be used for operation of the remote control unit, and it may have shorter life. When the remote unit becomes effective only for shorter distance or dose not effective to operate, replace them with two new batteries.

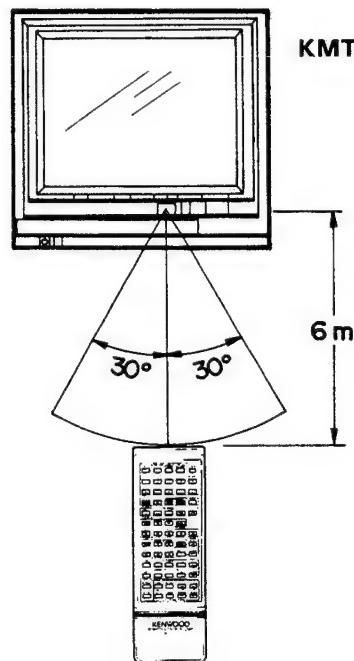
## Usable range of remote control unit

The usable range of the remote control unit may differ on temperature, humidity or using conditions, however, it is defined approximately as shown in the figure below:

### For controlling audio

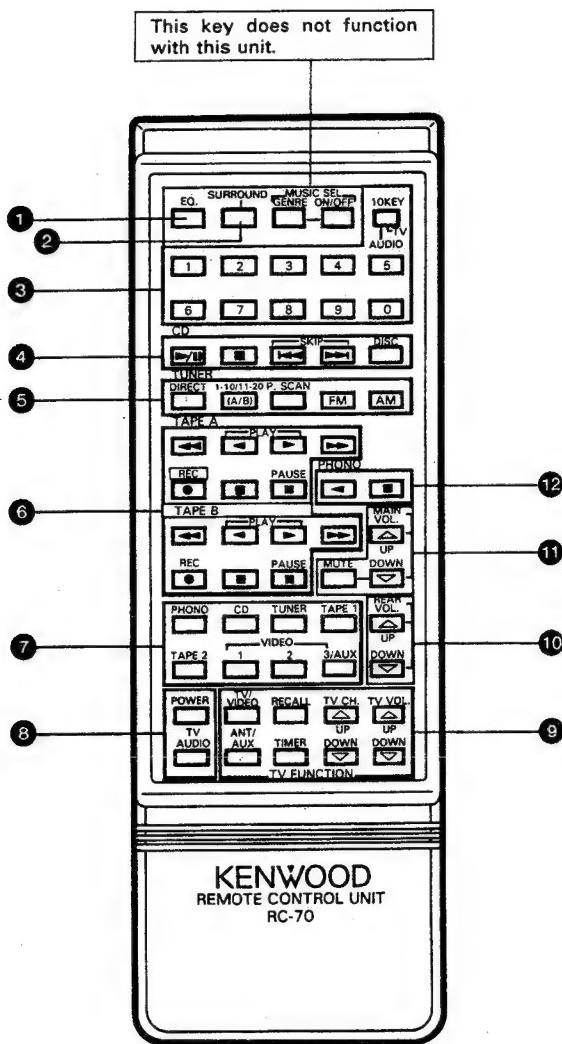


### For controlling TV set



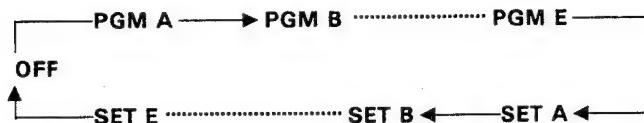
## CONTROLS AND INDICATORS

## ■ Control keys



## ① Equalizer preset keys (EQ)

The 5 "PGM" presets and the 5 "SET" presets—total of 10 equalizer preset patterns can be recalled sequentially.



## ② Surround key

This key is used to turn the surround system ON or OFF.

## ③ 10-KEY

**AUDIO:** 10-key direct operation is possible only for tuner and CD player.

(For example: When "7" is pressed while listening to track No. 4 of CD player, the track No. is changed to 7.)

**TV:** 10-key direct operation is possible only for TV. Use buttons "0-9" in combination for direct channel selection regardless of any previous memory settings or functions. Generally, key in channel numbers in two digits for speedy operation. To key in lower channel numbers from 2-9, key in "0", then the channel number. (For example, to tune in channel 9 directly, key in "0", then "9", for channel 23, key in "2", then "3", etc.) (U.S.A. only)

## ④ Compact disc player (DP-87/DP-57/DP-47/DP-M107R/DP-M97R/DP-M97) operation keys (CD)

## Play/pause key (▶/II)

When this key is pressed with a compact disc loaded in the compact disc player, the disc is played. (Same function as the play key on the compact disc player.)

When this key is pressed during play, the player enters the pause mode. To release pause mode, press it again.

## Stop key (■)

Press to cancel all operations. The pickup returns to the beginning of the first tune and the player enters the standby mode. (Same function as the stop key on the compact disc player.)

## Music skip key (▶▶)

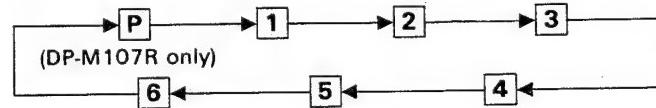
Press to skip to the beginning of the next tune. The pickup is advanced to the forward tunes by the number of times it is pressed. (Same function as the music skip key on the compact disc player.)

## Music skip key (◀◀)

Press to return to the beginning of the current tune. Pressing it again returns the pickup to the beginning. When the key is continuously pressed, the pickup returns to the backward tunes by the number of times it is pressed. (Same function as the music skip key on the compact disc player.)

## DISC select key

When a multiple CD player (DP-M107R, DP-M97R, DP-M97) is connected, this key selects one of six CDs sequentially in a cycle.



## ⑤ Tuner operation keys (TUNER)

## Direct

When this key is pressed, the unit is set to direct mode and the frequency of the desired station can directly be input using 10-key.

## 1 ~ 10/11 ~ 20 (A/B)

Each time this button is pressed, the preset station range is changed.

## P. SCAN

When this key is pressed, the preset station are automatically received from A-1 for a specified time.

## Band select keys (FM/AM)

Select the desired band for broadcast listening. (Same function as the band selector on the tuner)

## CONTROLS AND INDICATORS

### ⑥ Cassette deck operation keys (KX-97CW, KX-77CW, KX-67W .... TAPE A/B) (KX-87CR .... TAPE B only)

#### **Stop key (■)**

Press to stop tape running.

#### **Rewind key (◀◀)**

Press to fast-wind the tape to the left reel.

#### **Fast-forward key (▶▶)**

Press to fast-wind the tape to the right reel.

#### **Reverse Play key (◀)**

Press to start playback in reverse direction. (Rear side playback)

#### **Play key (▶)**

Press to start playback in forward direction. (Front side playback)

#### **Pause key (II)**

Press to stop play back or recording momentarily.

The function of the PAUSE key.

#### **Record key (REC) (●)**

Press to start recording.

### ⑦ Input selector keys

**PHONO:** To listen to a source from the turntable connected to the PHONO jacks, press this switch.

**CD:** To listen to a source from the CD player connected to the CD jacks, press this switch.

**TUNER:** To listen to a source from the tuner connected to the TUNER jacks, press this switch.

**TAPE-1:** To listen to a source from the tape deck connected to the TAPE 1 jacks, press this switch.

**TAPE-2:** To listen to a source of the tape deck, etc., connected to the TAPE 2 jacks, press this switch.

**VIDEO 1:** To listen to a source from the equipment connected to the VIDEO 1 jacks, press this switch.

**VIDEO 2:** To listen to a source from video cassette recorder connected to the VIDEO 2 jacks.

**VIDEO 3/AUX:** To listen to a source from the equipment connected to the AUX jacks.

### ⑧ POWER switch

Press to turn the power on for whole system.

**AUDIO:** Press to turn the stereo system ON. Press again to turn the stereo system OFF.

**TV (KMT-1026, KMT-2026S):** Press to turn the TV ON. Press again to turn the TV off.

### ⑨ TV (KMT-1026, KMT-2026S) operation keys (TV FUNCTION) (U.S.A. only)

**Note:** With the supplied remote control unit, only KMT-1026, KMT-2026S (monitor TV) can be operated.

#### **TV/VIDEO key**

Use this key to select the type of signal that the monitor will receive: TV, VIDEO 1 or VIDEO 2.

#### **RECALL key**

Press the recall key and both the time and channel will be displayed continuously. Press it again and they will disappear. The timer function can be utilized as well but the time will not continuously be displayed.

#### **Channel tuning UP/DOWN keys (TV CH.) (△/▽)**

Press the channel up (△) key to tune in higher channels, and the channel down (▽) key to tune in lower channels. Press the key continuously until the channel number you wish to receive appears on the upper right side of the screen.

#### **ANT/AUX key**

Press this key to set the ANT and AUX indicator to agree with the antenna input source.



#### **Note:**

Switching between TV and VIDEO etc., described above is not related to the function of this receiver should be effectuated or the TV set.

#### **TIMER key**

Press the timer key to set desired time.

#### **TV VOL. keys (UP△/DOWN▽)**

Apply steady pressure to the VOLUME UP or DOWN buttons, to increase or decrease the volume as desired.

#### **⑩ REAR VOL. keys (UP△/DOWN▽)**

Apply steady pressure to the REAR VOLUME UP or DOWN key to increase or decrease the volume as desired.

#### **⑪ Volume control keys (MAIN VOL.) (UP△/DOWN▽)**

Controls the volume of the speakers and headphones. Press the UP (△) key to increase the volume level and, press the DOWN (▽) key to decrease it.

#### **Muting key (MUTE)**

Press to decrease the volume level instantaneously. Pressing it again resumes the previous volume level. When this key is pressed, volume level is decreased. The MUTING indicator blinks.

#### **⑫ Turntable operation keys (PHONO)**

#### **Play key (◀)**

Press to start record play automatically.

For KD-67F, select the record size, before starting play with this key.

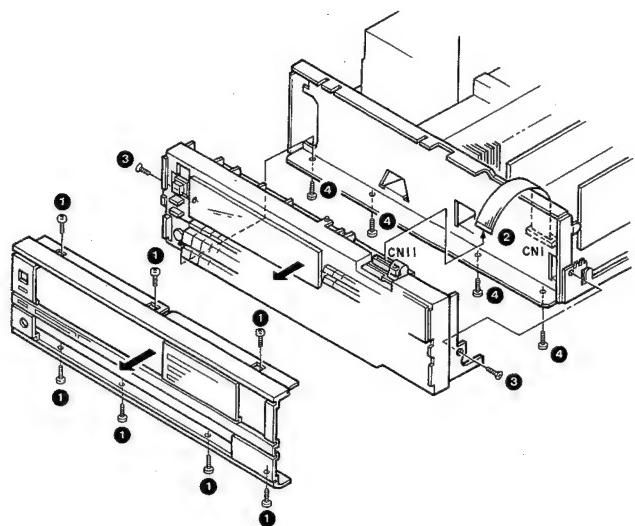
#### **Stop key (■)**

Press to stop play; the tonearm returns to the rest and the platter stops rotating.

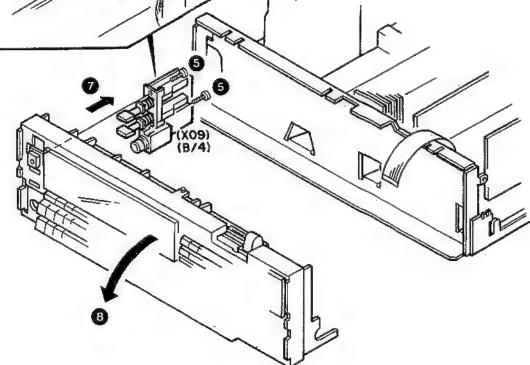
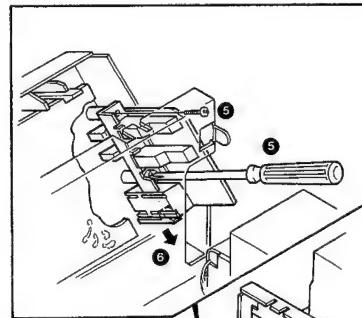
## DISASSEMBLY FOR REPAIR

Remove the case prior to the following operations.

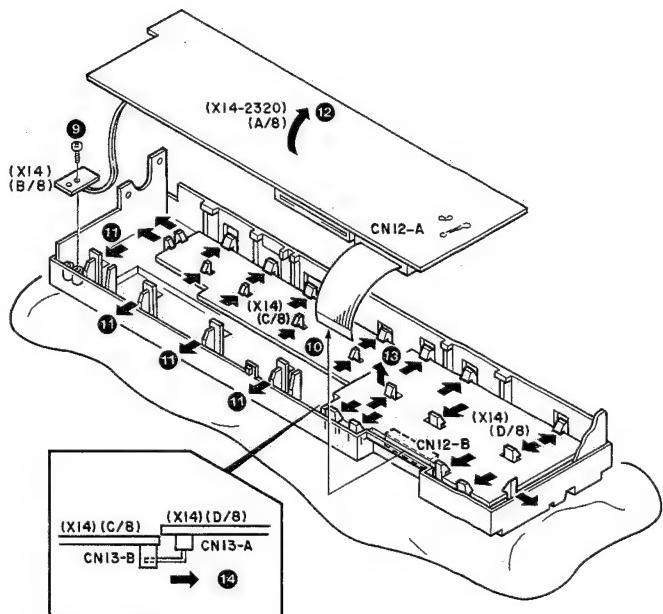
1. Remove the 3 screws from the upper side of the front panel, and the 4 screws from its lower side (①), and then take off the front panel.
2. Disconnect the parallel cable from CN11 (②), and remove the 2 screws (③) on the side of the sub-panel. Then, remove the 4 screws (④) retaining the sub-panel from its bottom, and tilt the sub-panel slightly in the direction of the arrow.



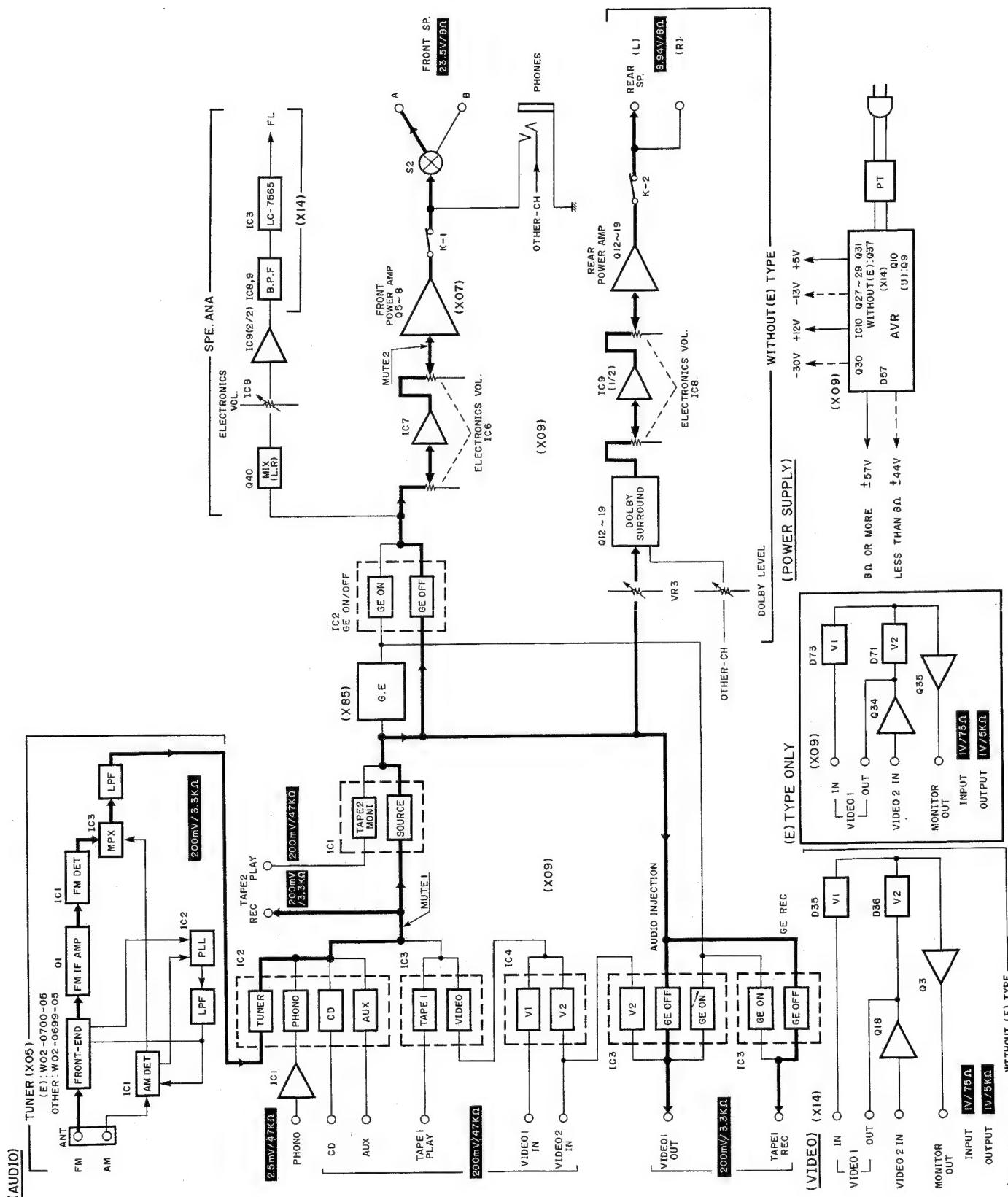
3. Remove the 2 screws (⑤) holding the (X09-) (B/4) PC board to the rear of the chassis, disengage the claw (⑥) below the PHONES jack, and then take out the PC board in the direction of the arrow (⑦).
4. Tilt the sub-panel in the direction of the arrow (⑧). (To prevent damage to the sub-panel, place a cloth under it.)



5. Remove the screw (⑨) holding the (X14-) (B/8) PC board, and then take out the PC board.
6. Disengage the parallel cable (⑩) from CN12-B, disengage the 4 claws (⑪), and then take out the (X14-2320) (A/8) PC board in the direction of the arrow (⑫).
7. Disengage the 21 claws retaining the (X14-) (C/8) and (X14-) (D/8) PC boards, and then take out both PC boards together in the direction of the arrow (⑬). (The two PC boards are coupled via connectors.)
8. When it is required to separate the (X14-) (C/8) and (X14-) (D/8) PC boards, disconnect the connectors in the direction of the arrow (⑭).



## BLOCK LEVEL DIAGRAM



# CIRCUIT DESCRIPTION

## Description of Components

**TUNER UNIT (X05-353X-XX) 0-10 : K, P 0-81 : U, UE 2-71 : E**

Component	Use/Function	Operation/Condition/Compatibility
Q1	FM IF amp.	
Q2, 3	LPF (Low Pass Filter)	
Q4	Buffer	For the E version only.
Q5, 6	Emphasis select	75µs when ON, 50µs when OFF.
Q7, 8	+B power supply select	Q7 : FM + B (ON in FM mode), Q8 : AM + B (ON in AM mode).
IC1 (LA1265)	FM IF/AM detection	
IC2 (LM7001)	PLL (Phase Locked Loop)	
IC3 (AN7470)	MPX (Multiplexer)	

**POWER AMPLIFIER UNIT (X07-253X-XX) 0-14 : K, P, U, UE 2-72 : E**

Component	Use/ Function	Operation/Condition/Compatibility
Q1 ~ 4	Primary stage voltage amp.	
Q5 ~ 8	Primary stage cascode amp.	
Q9 ~ 12	Secondary stage voltage amp.	
Q13 ~ 16	Third stage voltage amp.	
Q17, 18	Third stage cascode amp.	
Q19, 20	Third stage current mirror	
Q21 ~ 24	Power amp. driver	
Q25, 26	Protection, current detection	Positive (+) side.
Q27, 28	Protection, current detection	Negative (-) side.
Q29	Protection	Transmits the current detected signal to IC1.
IC1 ( $\mu$ PC1237HA)	Protection	Relay drive.

**AUDIO UNIT (X09-265X-XX) 0-10 : K, U, UE 1-01 : P 2-71 : E**

Component	Use/Function	Operation/Condition/Compatibility
Q1, 2	Muting	For MUTE 1.
Q3, 4	Muting	For MUTE 2.
Q5 ~ 8	Final transistor	
Q9, 10	For bias compensation	
Q11	Muting	For the surround channel.
Q12, 13	Class-A primary differential amp.	Surround amp. Compatible with 2SA933S.
Q14	Class-A pre-driver	Compatible with 2SC1740S.
Q15	For bias compensation	Surround amp.
Q16, 17	Pre-driver	Surround amp.
Q18, 19	Final transistor	Surround amp.
Q20	Current detection	Current detection for the final transistor of the surround circuit. Compatible with 2SC1740S.
Q21	Protection	Turns ON when Q20 is ON to turn the surround output relay OFF. Compatible with 2SA933S.
Q22	Constant voltage circuit	Constant voltage circuit for the output relay and the surround output relay.
Q24	Transistor switch	Turns ON when Q21 is ON or Q23 is ON, to turn Q25 OFF. Compatible with 2SC1740S.
Q25	Transistor switch	Drives Q26 to turn the output relay and the surround output relay ON and OFF.
Q26	Relay drive transistor	Driver transistor for the output relay and the surround output relay.
Q27 ~ 29	Constant voltage circuit	For the -12V power supply.
Q30	Constant voltage circuit	For the -30V power supply.
Q31	-30V ON/OFF switch	Turns ON immediately after power ON, and when power is OFF, to turn the -30V OFF.
Q32	Muting driver	Turns Q1 and Q2 ON/OFF. Compatible with 2SA933S.
Q33	Muting driver	Turns Q3, Q4 and Q11 ON/OFF. Compatible with 2SA933S.

# CIRCUIT DESCRIPTION

Component	Use/Function	Operation/Condition/Compatibility
Q34	Video buffer for REC OUT	
Q35	Video buffer for MONITOR OUT	
Q36	Surround ON/OFF switch	Turns ON when surround mode is engaged to turn Q11 OFF. Compatible with 2SC1740S.
Q37	Surround lamp driver	Turns ON when surround mode is engaged.
Q38	Switch for VIDEO 1	Turns ON when VIDEO 1 is selected to select IC4.
Q39	Switch for VIDEO 2	Turns ON when VIDEO 2 is selected to select IC4.
Q40	MONO/ST select switch	Turns ON when MUTE 1 is at a high level, or when forced MONO is selected. Compatible with 2SC1740S.
Q41	Muting for the CLK	Cuts the CLK line except when the CLK for the tuner is at a high level.
Q42	Muting for DATA	Cuts the DATA line except when the CLK for the tuner is at a high level.
Q43	Ripple filter	For Tuner unit (X05-).
IC1 (NJM4558D-A)	Equalizer amp.	
IC2 (TC9164N)	Selector	SOURCE select, TAPE 2 select, GE (Graphic Equalizer) ON/OFF select.
IC3 (TC9162N)	Selector	GE REC select, AI (Audio Injection) select.
IC4 (LC4966)	Selector	VIDEO 1/2 select.
IC5 (NJM4558D)	Buffer amp. for VIDEO 1 and REC OUT	Compatible with M5218P.
IC6 (TC9176P)	Electronic VR	Front speaker volume.
IC7 (NJM4558D-A)	Buffer amp. for the electronic VR	Compatible with NJM4560D.
IC8 (TC9176P)	Electronic VR	For the surround amp., for the spectrum analyzer level.
IC9 (NJM4558D)	Buffer amp. for the electronic VR	Compatible with M5218P.
IC10 ( $\mu$ PC7812HF)	Constant voltage power supply	3-pin regulator for the +12V constant voltage power supply.

**DISPLAY UNIT (X14-232X-XX) 0-10 : K, P 0-81 : U, UE 2-71 : E**

Component	Use/Function	Operation/Condition/Compatibility
Q1	Reset circuit	
Q2	FIP grid current buffer	
Q3	Video buffer	
Q9, 10	5V power supply	
Q11 ~ 13	Relay driver circuit	
Q14 ~ 17	LED driver circuit	Positive logic.
Q18	Video buffer	
IC1 ( $\mu$ PD75108CW-200)	Microprocessor	
IC2 ( $\mu$ PD6330C)	Static driver	FIP driver.
IC3 (LC7565)	Spectrum analyzer display driver	FIP driver.
IC4 ~ 7 ( $\mu$ PA80C)	Transistor array	FIP driver (Negative logic).
IC8, 9 ( $\mu$ PC4574C)	BPF (Band Pass Filter) for spectrum analyzer	
IC10 ( $\mu$ PD4081BC)	Data mute	Data transfer select for the VOL IC and SW IC.
IC11 (MN3101)	Clock for the BBD	
IC12 (MN3007)	BBD (Bucket Brigade Device)	
IC13 (NE645N)	Dolby surround IC	
IC14 (PST529C)	Reset IC	
IC15 (NJM4558D)	Buffer amp.	
IC16 (NJM4558D)	Buffer amp. (1/2), L/R mixing amp. (2/2)	
IC17 (NJM4558D)	Buffer amp. (1/2), Filter (2/2)	
IC18 (NJM4558D)	Output amp. (1/2), Filter (2/2)	

**EQUALIZER UNIT (X85-1120-10)**

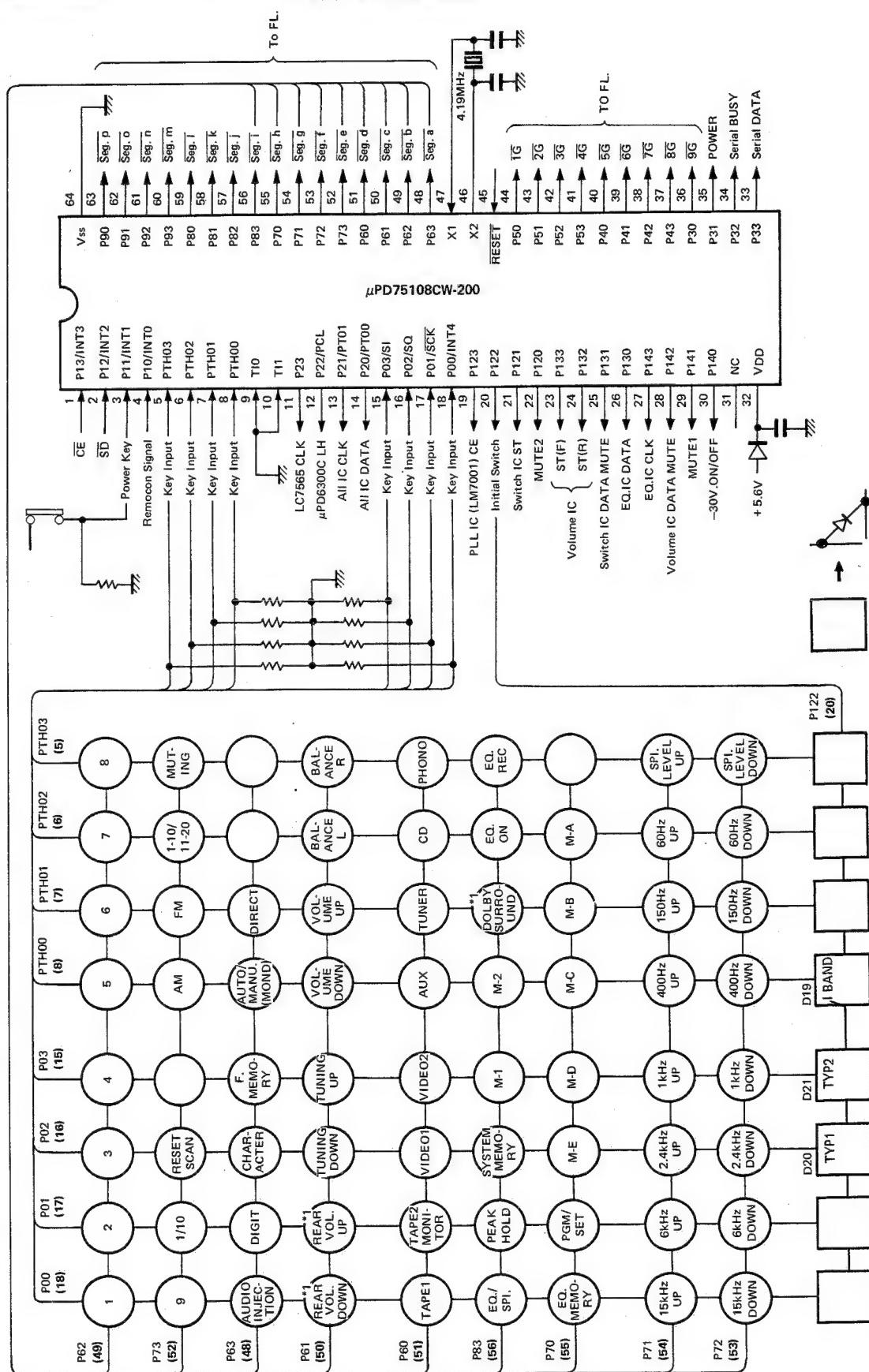
Component	Use/Function	Operation/Condition/Compatibility
IC1 (LC7522)	Electronic VR array for the graphic equalizer	
IC2, 3 (M5229P)	Op-amp. for the graphic equalizer	Semiconductor inductor x 7.

## CIRCUIT DESCRIPTION

Microprocessor :  $\mu$ PD75108CW-170 or -200 (X14-2320-10 : IC1)

Terminal connection

\*1 : K,P,U & UE types only.



# CIRCUIT DESCRIPTION

## ● Version /Model Set up

Setup of the version of the model for each area is performed by the initial setup diode matrix.

Set to "1" when diode is provided, or "0" when not provided.

### 1) Version setup switch

Version setup switch	Version (Area)	Band	Receiving frequency range	Channel spacing	Reference frequency
0	K	FM	87.5 ~ 108.0MHz	100kHz	50kHz
		AM	530 ~ 1610kHz	10kHz	10kHz
1	E	FM	87.5 ~ 108.0MHz	50kHz	50kHz
		AM	531 ~ 1602kHz	9kHz	9kHz

### 2) Model setup switch (TYP1, TYP2)

Model setup switch		Model	Function		
			Dolby surround	Speaker matrix	Spectrum analyzer display (SPI)
TYP1	1	KR-V87 (K)	O	X	O
1	0	KR-V77 (K)	X	O	X
0	1	KR-V87 (E)	X	X	O

O : Available, X : Not available

## ● Switch IC CLK (15), DATA (14), ST (13)

	S1	S2	S3	S4	S5	S6	S7	S8
TC9164N	CD	AUX	PHONO	TUNER	TAPE 2 OFF	TAPE 2 ON	EQ OFF	EQ ON
TC9162N	EQ REC OFF	EQ REC ON	AUDIO INJECTION EQ REC ON	AUDIO INJECTION EQ REC OFF	TAPE 1	VIDEO 1 VIDEO 2	AI	-
	Open when TAPE 1 is turned ON.		Open when A.I. is turned OFF.					

## ● Static Driver IC : μPD6300C CLK (12), DATA (11), LH (10)

Output	O0 (15)	O1 (16)	O2 (17)	O3 (18)	O4 (19)	O5 (20)	O6 (21)	O7 (22)	O8 (23)	O9 (24)
Display	ch.	11-20	1-10	AM, kHz	FM, MHz	N V A W	N V A W	N V A W	AUTO	DEFEAT
Terminal	S1 (24)	S2 (25)	S3 (26)	S4 (29)	S6 (31)	S7 (34)	S8 (35)	S9 (36)	S12 (39)	S13 (41)
Output	O10 (25)	O11 (26)	O12 (27)	O13 (1)	O14 (2)	O15 (3)	O16 (4)	O17 (5)	O18 (6)	O19 (7)
Display	ON	AUDIO INJECTION	VIDEO [1]	VIDEO [2]	TAPE 2	* REAR V VOL.	FRONT V VOL.	FRONT A VOL.	* REAR A VOL.	* SURROUND
Terminal	S14 (42)	S15 (43)	S17 (45)	S18 (46)	S16 (44)	LED	LED	LED	LED	LAMP

\* : Without E type

## ● PLL IC : LM7001 CLK (2), DATA (4), CE (3)

	BO1 (7)	BO3 (9)
FM	1	0
AM	0	1
Except TUNER	0	0

	BO2 (8)
AUTO	0
MONO	1

0 : Short, 1 : Open

## ● Volume IC : TC9176P CLK (8), DATA (9), ST (10)

The FRONT volume control uses the same IC with reversed L/R channel connections.

The R-channel of the rear volume control is also used to control the Surround (rear-channel) speaker, while the L-channel is used to control the SPI (Spectrum Peak Indicator) level.

## ● Equalizer IC : LC7522

S (13) : VEE, CLK (17), DATA (16)  
f7 = 60Hz, f1 = 15kHz

## ● EQ./SPI display IC : LC7565

S1 (15), S2 (16) : VDD, CLK (18), DATA (17)  
f7 = 60Hz, f1 = 15kHz

## CIRCUIT DESCRIPTION

## ● Terminal functions

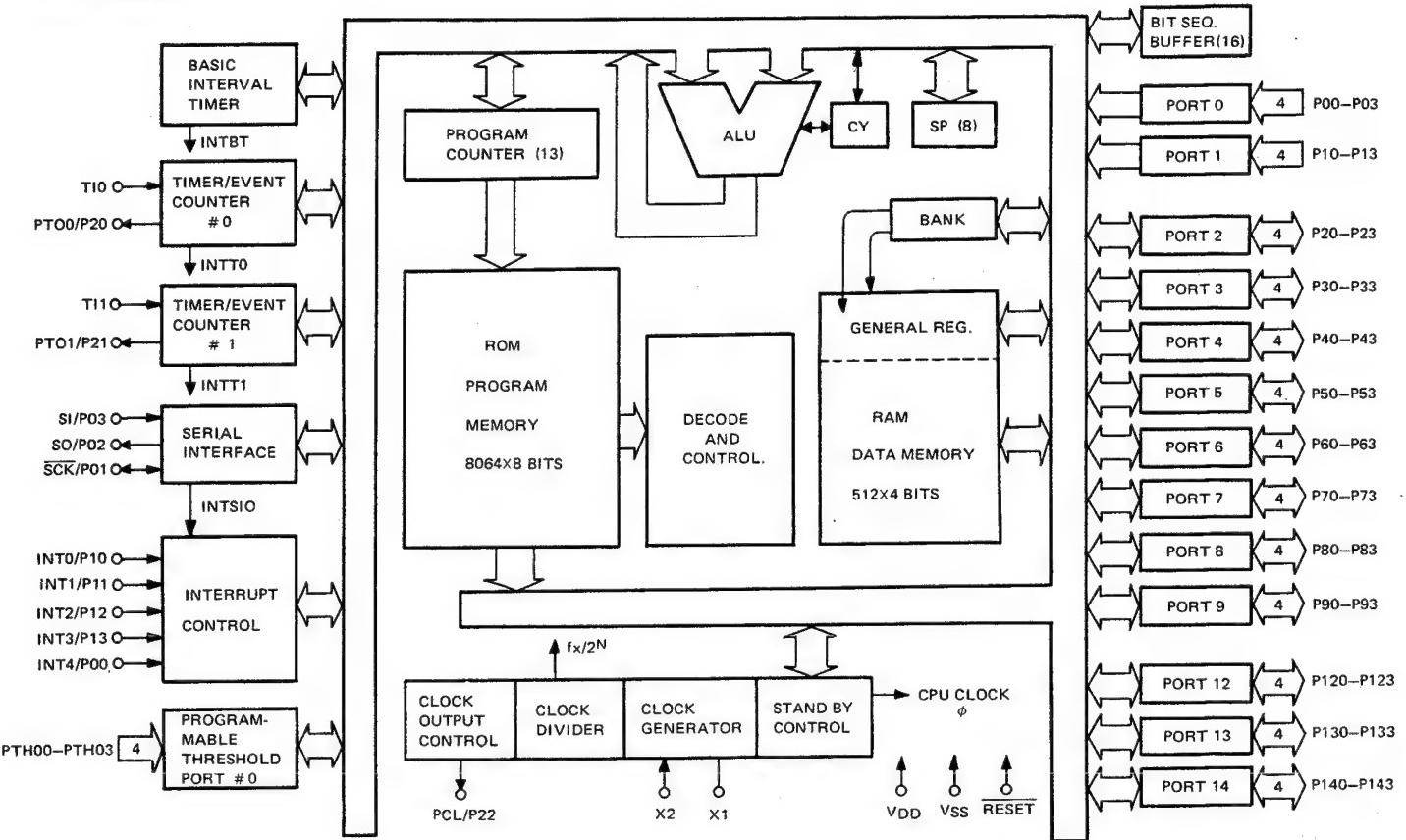
Pin No.	Pin name	I/O	Name	Description
1	P13/INT3	I	CE	Backup detection pin. When this goes low level, backup mode is set and the clock stops.
2	P12/INT2	I	SD	Station presence/absence detection signal input pin : Used in Auto Tuning and Preset Scan. High : Station is not present, Low : Station is present.
3	P11/INT2	I	Power Key	Key ON when high level at power key input terminal.
4	P10/INT0	I	Remocon Signal	Remote control signal input pin after detection : Inputs the remote control signal level in normal mode and when reading out the leader code. Detects the signal by interruption the rising edge when reading the data.
5 ~ 8	PTH03 ~ PTH00	I	Key Input	Key matrix return signal input : Normally high. (Threshold voltage = VDD x 7.5/16, Conversion time : 32.3μs.)
9, 10	T10, T11	I	Not used	No-connection input pin. Fixed at VDD or VSS.
11	P23	O (CMOS)	LC7565 CLK	Output pin to be connected to the CLK pin of LC7565. Normally low.
12	P22/PCL	O (CMOS)	Static Driver (μPD6300C)	LH signal output pin for the Static Driver IC (μPD6300C). Normally low, and high when data is output.
13	P21/PTO1	O (CMOS)	CLK	CLK signal output pin for μPD6300C, TC9162N, TC9164N, TC9176P and LM7001. TC9176P, TC9162N and TC9164N are not directly connected to the CLK pin of each IC. For TC9176P, the VOL IC DATA MUTE signal ANDed with the signal from the CLK pin are input to the IC. For TC9162N and TC9164N the switch IC DATA MUTE signal ANDed with the signal from the CLK pin are input to the IC.
14	P20/PTO0	O (CMOS)	DATA	DATA signal output pin for μPD6300C, TC9162N, TC9164N, TC9176P and LM7001. In the same way as the CLK signal, each DATA MUTE signal is ANDed with this signal and input to the IC for TC9176P, TC9162N and TC9164N.
15 ~ 18	P03/SI ~ P00/INT4	I	Key Input	Key matrix returns signal input pin : Normally high.
19	P123	O (N ch open drain)	PLL IC (LM7001) CE	CE signal output pin for the PLL IC (LM7001). Normally low, and high when data is output.
20	P122	O (N ch open drain)	Diode Switch Intake Signal	Strobe signal for the diode switch intake. Goes low momentarily immediately after Preset, after then it is always high.
21	P121	O (N ch open drain)	Switch IC (TC9162N, TC9164N) ST	ST signal output pin for the switch ICs (TC9162N and TC9164N). Normally low, and high when data is output in a moment. The microprocessor signal is input to the ST pin after differentiating.
22	P120	O (N ch open drain)	MUTE2	With the volume level of the front channel set to between 0 and -28dB, outputs the muting signal for a short period (about 10msec.) when the TAPE 2 ON/OFF, EQ ON/OFF, EQ REC ON/OFF, surround ON/OFF, AUDIO INJECTION ON/OFF or input selector is switched. When the volume level of the front channel is set to -∞dB, outputs the muting signal.
23	P133	O (N ch open drain)	VOL IC ST (FRONT)	ST signal output pin of the Front IC for Vol. IC TC9176P. Normally low : Goes high momentarily when data is output. High when power is OFF.
24	P132	O (N ch open drain)	VOL IC ST (REAR)	ST signal output pin of the Rear IC for Vol. IC TC9176P. Normally low : Goes high monentarily when data is output. High when power is OFF.
25	P131	O (N ch open drain)	Switch IC DATA MUTE	Output pin for the signal which makes the DATA or CLK signal output from P21 and P20, so that the other IC does not input to the switch IC. This signal ANDed with the signal from P21, P20 are input to the Switch IC. High when power is OFF.
26	P130	O (N ch open drain)	EQ IC (LC7522) DATA	DATA signal input pin of EQ IC LC7522. High when power is OFF.

# CIRCUIT DESCRIPTION

Pin No.	Pin name	I/O	Name	Description
27	P143	O (N ch open drain)	EQ IC (LC7522) CLK	CLK signal input pin of EQ IC LC7522. High when power is OFF.
28	P142	O (N ch open drain)	VOL IC DATA MUTE	Output pin for the signal which makes the DATA or CLK signal output from P21 and P20, so that the other IC does not input to the Vol. IC. This signal ANDed with the signal from P21, P20 are input to the Switch IC. High when power is OFF.
29	P141	O (N ch oepn drain)	MUTE1	Muting signal during tuner scanning when the input selector is changed. Normally low : Active high. High when power is OFF.
30	P140	O (N ch open drain)	-30V ON/OFF	-30V ON/OFF control signal output pin to light the EQ/SPI display and other display sections simultaneously. A high level signal is output about 500ms after the POWER pin (P31) goes high. Low when power is OFF.
31	NC			
32	VDD			Power supply pin.
33	P33	I/O (CMOS)	Serial DATA	DATA pin for system serial communication. Normally in input mode, and in output mode only when serial data is output.
34	P32	I/O (CMOS)	Serial BUSY	BUSY pin for system serial communication. Normally in input mode. Outputs a high level signal when serial data is output. Also provides the serial bus control function.
35	P31	O (CMOS)	POWER	Output pin for the power relay control : Active high. This is controlled by the POWER key. It alternates between high (Power ON) and low (Power OFF) each time the POWER key is pressed.
36	P30		9G	
37	P43		8G	
38	P42		7G	
39	P41	O (CMOS)	6G	FL digit control pin.
40	P40		5G	Negative logic.
41	P53		4G	Drives the FL display through an inversion buffer.
42	P52		3G	
43	P51		2G	
44	P50		1G	
45	RESET	I		Input pin for the reset signal from the microprocessor.
46	X2			System clock oscillator pin (4.194MHz).
47	X1			
48	P63		Seg a, Key	
49	P62		Seg b, Key	
50	P61		Seg c, Key	
51	P60		Seg d, Key	
52	P73		Seg e, Key	
53	P72		Seg f, Key	
54	P71		Seg g, Key	
55	P70	O (CMOS)	Seg h, Key	FL segment control pin. Negative logic.
56	P83		Seg i, Key	Drives the FL display through an inversion buffer.
57	P82		Seg j	Key intake strobe signal output pin.
58	P81		Seg k	Intakes each key press one by one during the display blanking period.
59	P80		Seg l	
60	P93		Seg m	
61	P92		Seg n	
62	P91		Seg o	
63	P90		Seg p	
64	VSS			GND pin.

## CIRCUIT DESCRIPTION

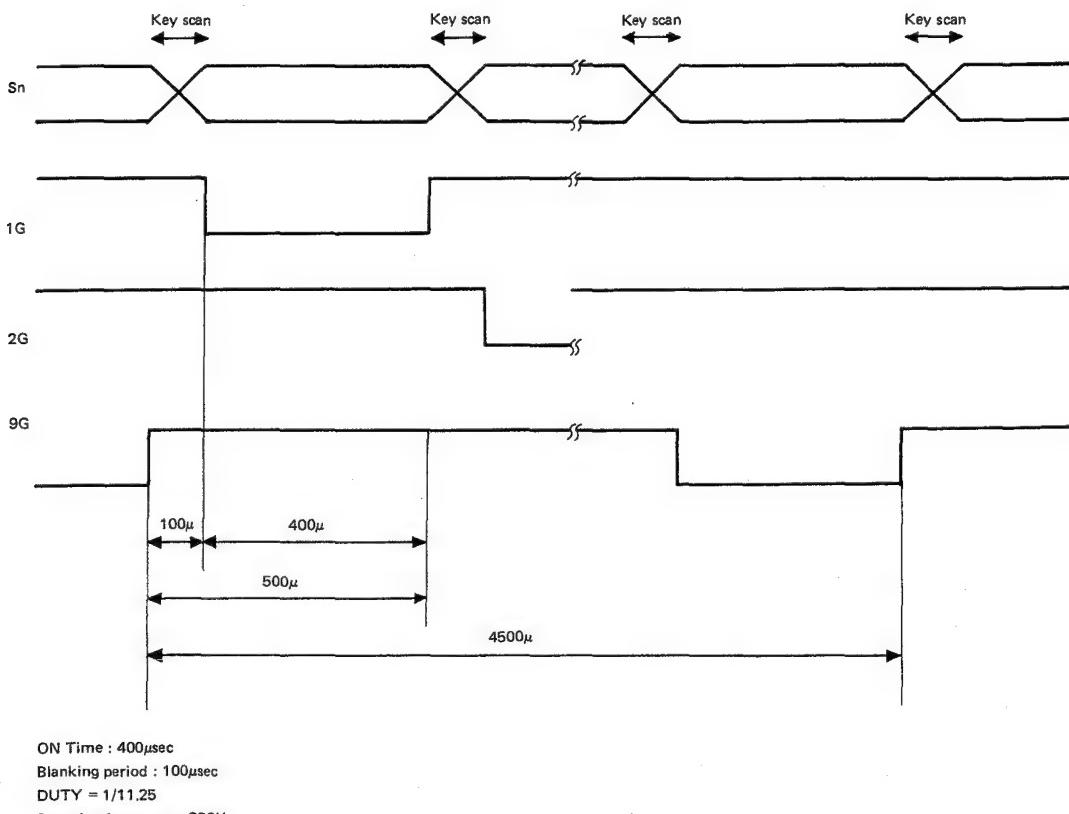
Block diagram



# CIRCUIT DESCRIPTION

## ● Display Driver

The BG-526GK display is driven by attaching the inversion port to the output port of microprocessor  $\mu$ PD75108CW. The time chart is as follows :



## ● Initial Status

### 1) Contents of the initial status

Function	Status
<b>Amplifier (AMP) section</b>	
AUDIO SELECTOR	TUNER
TAPE 2 MONITOR	OFF
VIDEO SELECTOR	VIDEO 1
VOLUME	-56dB
REAR VOLUME	±0dB
BALANCE	CENTER
AUDIO INJECTION	OFF
SURROUND	OFF
<b>Equalizer (EQ) section</b>	
EQ MEMORY MODE	PGM
EQ MEMORY PRESET	Not in PRESET recall status.
EQ	±0dB FLAT
EQ PGM MEMORY	±0dB FLAT
EQ ON/DEFEAT	DEFEAT
EQ REC ON/OFF	OFF
Display mode	SPI
<b>Tuner section</b>	
Receiving frequency	Lower limit of the FM frequency range.
TUNING MODE	AUTO
1-10/11-20	1-10
Power supply	OFF

### 2) Initial status setup

Setting of the initial status will be performed in a following cases :

1. When the memory contents backed up has been cancelled.
2. When the power cord is plugged into the AC outlet while the MEMORY key on the tuner is being depressed.

## ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
<b>FM SECTION</b> <b>SELECTOR: FM</b>							
1	DETECTOR	(A) 98.0MHz 1kHz, $\pm$ 75kHz dev 60dB $\mu$ (ANT input)	Connect a DC voltmeter between TP3 and TP4.	AUTO or MONO 98.0MHz	L4 (X05-)	0V	(a)
2	VCO	(A) 98.0MHz 0 dev 100dB $\mu$ (ANT input)	Connect a frequency counter between TP5 and GND.	AUTO 98.0MHz	VR3 (X05-)	19.00kHz	(b)
3	DISTORTION (STEREO)	(C) 98.0MHz 1kHz, $\pm$ 68.25kHz dev Selector:L or R Pilot: $\pm$ 6.75kHz dev 60dB $\mu$ (ANT input)	(B)	98.0MHz	IFT (Front end)	Minimum distortion.	
4	SEPARATION (B Type)	(C) 98.0MHz Stereo signal 60dB $\mu$ (ANT input)	(B)	AUTO 98.0MHz	VR4 (X05-)	Minimum crosstalk.	
5	TUNING LEVEL	(A) 98.0MHz 0 dev 14dB $\mu$ (ANT input) 750	(B)	AUTO or MONO 98.0MHz	VR1 (X05-)	Adjust VR1 and stop at the point where FL1(TUNED) goes on.	
<b>AM SECTION</b> <b>Keep the AM loop antenna installed. SELECTOR: AM</b>							
(1)	BAND EDGE (Low)	-	Connect a DC voltmeter between TP1(GND) and TP2.	-	L9 (X05-)	1.5V	(c)
(2)	BAND EDGE (High)	-	Connect a DC voltmeter between TP1(GND) and TP2.	-	TC2 (X05-)	8.0V	(c)
Repeat alignments (1) and (2) several times.							
(3)	RF ALIGNMENT (1)	(D) 600kHz 20dB $\mu$ (ANT input)	(B)	-	L8 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
(4)	RF ALIGNMENT (2)	(D) 1400kHz 20dB $\mu$ (ANT input)	(B)	-	TC1 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
Repeat alignments (3) and (4) several times.							
(5)	IF TRANSFORMER	(D) 1000kHz 20dB $\mu$ (ANT input)	(B)	-	L10 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
(6)	TUNING LEVEL	(D) 1000kHz 36dB $\mu$ (ANT input)	(B)	-	VR2 (X05-)	Adjust VR2 and stop at the point where FL1(TUNED) goes on.	
<b>AUDIO SECTION</b>							
[1]	IDLE CURRENT	-	(E) Connect a DC voltmeter across CP1(L) CP2(R)	Volume: 0	VR1(L) VR2(R) (X07-)	13mV	(d)
[2]	DOLBY SURROUND CENTER ADJUSTMENT	(F) Connect an AG(1kHz) to CD jack(L or R)	Connect an oscilloscope between TP9 and GND.	Main volume: 0 Increase the input level until the waveform clips.	VR2 (X14-)	Adjust so that the upper and lower waveform clips becomes symmetrical.	(e)
[3]	DOLBY SURROUND CLOCK LEAKAGE ADJUSTMENT	(F) Cut off the input signal level.	Connect an oscilloscope between TP9 and GND.	-	VR1 (X14-)	Adjust so that the height of the clock frequency(several 10kHz) becomes minimum.	(e)

## REGLAGE

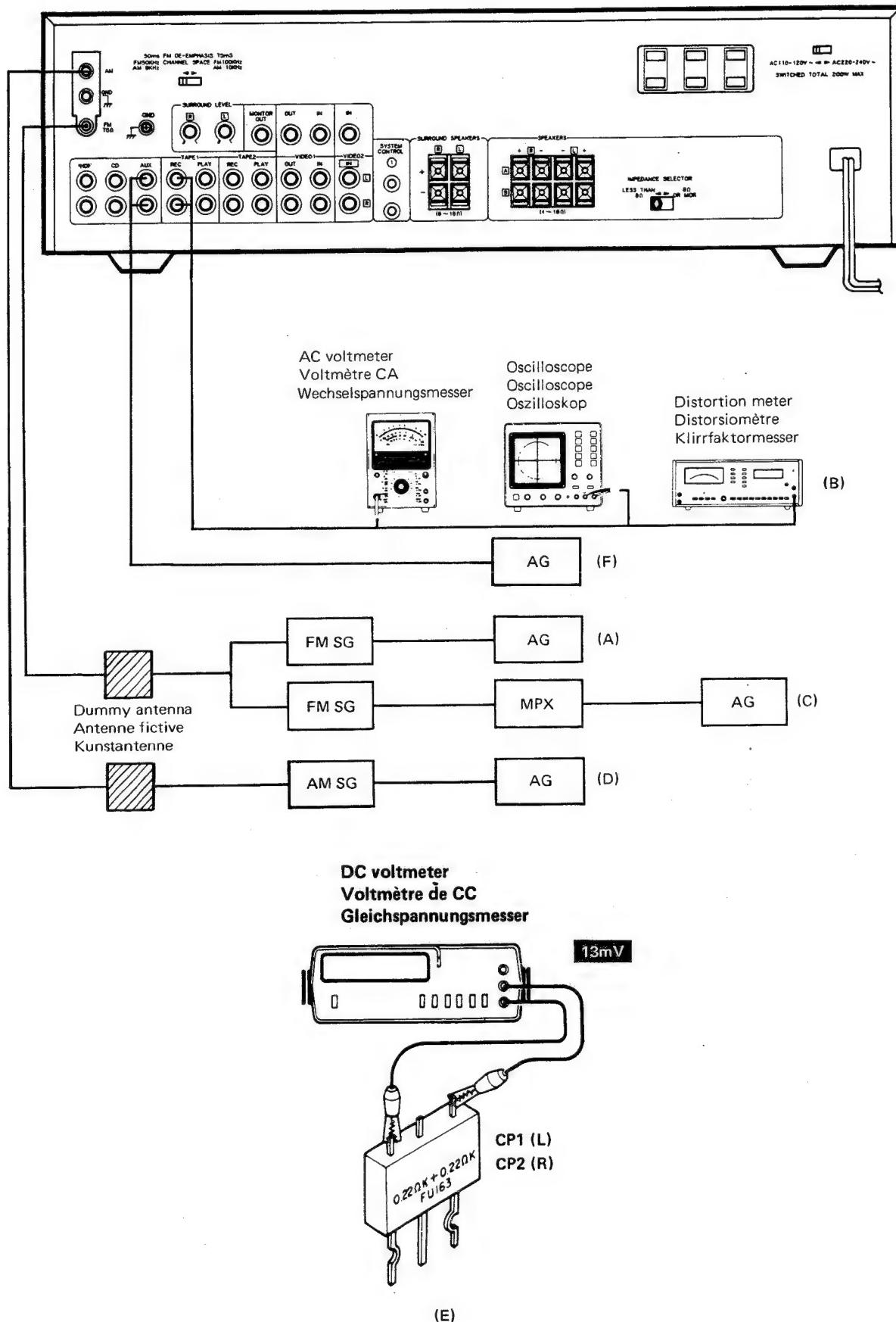
N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU TUNER	POINT DE L'ALIGNEMENT	ALIGNER POUR	FIG.
<b>SECTION MF</b>							
		SELECTEUR : FM					
1	DETECTEUR	(A) 98,0MHz 1kHz.±75kHz dév 60dB $\mu$ (Entrée ANT)	Relier un voltmètre CC entre les TP3 et TP4.	AUTO ou MONO 98,0MHz	L4 (X05-)	0V	(a)
2	OSCILLATEUR CONTROLE PAR LA TENSION	(A) 98,0MHz 0 dév 100dB $\mu$ (Entrée ANT)	Relier un compteur de fréquence entre les TP5 et GND.	AUTO 98,0MHz	VR3 (X05-)	19,00kHz	(b)
3	DISTORSION (STEREO)	(C) 98,0MHz 1kHz.68,25kHz dév Selection:1 ou R Signal pilote: ±6,75kHz dév 60dB $\mu$ (Entrée ANT)	(B)	98,0MHz	Tête H.F. IFT (X05-)	Distorsion minimale.	
4	SEPARATION (E type)	(C) 98,0MHz Signal stéréo 60dB $\mu$ (Entrée ANT)	(B)	AUTO 98,0MHz	VR4 (X05-)	Diaphonie minimale.	
5	NIVEAU D'ACCORDER	(A) 98,0MHz 0 dév — 14dB $\mu$ (Entrée ANT) 75Ω	(B)	AUTO ou MONO 98,0MHz	VR1 (X05-)	Ajuster VR1 et arrêter le mouvement de VR1 au moment où le FL1(TUNED)s'allume.	
<b>SECTION MA</b>							
		Laisser l'antenne bouche MA installée.		SELECTEUR: AM			
(1)	BORD DE BANDE (Bas)	—	Relier un voltmètre entre les TP1(GND) et TP2.	—	L9 (X05-)	1,5V	(c)
(2)	BORD DE BANDE (Haut)	—	Relier un voltmètre entre les TP1(GND) et TP2.	—	TC2 (X05-)	8,0V	(c)
		Répéter les points (1) et (2) plusieurs fois.					
(3)	ALIGNEMENT H.T. (1)	(D) 600kHz 20dB $\mu$ (Entrée ANT)	(B)	—	L8 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
(4)	ALIGNEMENT H.T. (2)	(D) 1400kHz 20dB $\mu$ (Entrée ANT)	(B)	—	TC1 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
		Répéter les points (3) et (4) plusieurs fois.					
(5)	TRANSFORMATEUR F.I.	(D) 1000kHz 20dB $\mu$ (Entrée ANT)	(B)	—	L10 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
(6)	NIVEAU D'ACCORDER	(A) 1000kHz 36dB $\mu$ (Entrée ANT)	—	—	VR2 (X05-)	Ajuster VR2 et arrêter le mouvement de VR2 au moment où le FL1(TUNED)s'allume.	
<b>SECTION AUDIO</b>							
[1]	COURANT DE POLARISATION	—	(E) Connecter un voltmètre CC sur CP1(L) CP2(R)	Volume: 0	VR1(G) VR2(D) (X07-)	13mV	(d)
[2]	AJUSTEMENT CENTRAL DE L'ENVIRONNEMENT DOLBY	(F) Relier un AG(1kHz) au CD prise (L ou R).	Relier un oscilloscope entre les TP9 et GND.	VOLUME principal: 0 Augmenter le niveau d'entrée jusqu'à ce que la forme d'onde s'écrète.	VR2 (X14-)	Ajuster pour que les écrètements des formes d'onde supérieure et inférieure soient symétriques.	(e)
[3]	AJUSTEMENT DE PUITE DE L'HORLOGE DE L'ENVIRONNEMENT DOLBY	(F) Couper le niveau de signal d'entrée.	Relier un oscilloscope entre les TP9 et GND.	—	VR1 (X14-)	Ajuster pour que la hauteur de la fréquence de l'horloge (plusieurs dizaines de 10kHz) devienne minimum.	(e)

## ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	TUNER-EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
UKW - EMPFANGSABTEILUNG WÄHLER: FM							
1	DETEKTOR	(A) 98,0MHz 1kHz, ±75kHz Hub 60dBμ(ANT-Eingang)	Einen Gleichspannungsmesser zwischen TP3 und TP4 anschließen.	AUTO oder MONO 98,0MHz	L4 (X05-)	0V	(a)
2	SPANNUNGS-GEREGELTER OSZILLATOR	(A) 98,0MHz 0 Hub 100dBμ(ANT-Eingang)	Einen Frequenzzähler zwischen TP5 und GND anschließen.	AUTO 98,0MHz	VR3 (X05-)	19,00kHz	(b)
3	KLIRRFAKTOR (STEREO)	(C) 98,0MHz 1kHz, ±68,25kHz Hub Wähler: L oder R Piloten: ±6,75kHz Hub 60dBμ(ANT-Eingang)	(B)	98,0MHz	Frontend IFT (X05-)	Minimal Klirrfaktor.	
4	STEREO KANAL TRENNUNG (E Type)	(C) 98,0MHz Stereo Signal 60dBμ(ANT-Eingang)	(B)	AUTO 98,0MHz	VR4 (X05-)	Minimal Klirrfaktor.	
5	ABSTIMM PEGEL	(A) 98,0MHz 0 Hub — 14dBμ(ANT-Eingang) 75Ω	(B)	AUTO oder MONO 98,0MHz	VR1 (X05-)	Den Pegel wiederstand aufdrehen, und dem VR1 Halt geben wobei den PL1(TUNED) anzeiger leuchtet wird.	
MW - EMPFANGSABTEILUNG Die MW-Rahmenantenne angebracht lassen. WÄHLER: AM							
(1)	BANDKANTE (Niedrig)	—	Einen Gleichspannungsmesser zwischen TP1(GND) und TP2 anschließen.	—	L9 (X05-)	1,5V	(c)
(2)	BANDKANTE (Hoch)	—	Einen Gleichspannungsmesser zwischen TP1(GND) und TP2 anschließen.	—	TC2 (X05-)	8,0V	(c)
Abstimmungen (1) und (2) mehrere Male wiederholen.							
(3)	HF-ABGLEICH (1)	(D) 800kHz 20dBμ(ANT-Eingang)	(B)	—	L8 (X05-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
(4)	HF-ABGLEICH (2)	(D) 1400kHz 20dBμ(ANT-Eingang)	(B)	—	TC1 (X05-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
Abstimmungen (3) und (4) mehrere Male wiederholen.							
(5)	ZF-ÜBERTRAGER	(D) 1000kHz 20dBμ(ANT-Eingang)	(B)	—	L10 (X05-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
(6)	ABSTIMM PEGEL	(A) 1000kHz 36dBμ(ANT-Eingang)	—	—	VR2 (X05-)	Den Pegel wiederstand aufdrehen, und dem VR2 Halt geben wobei den PL1(TUNED) anzeiger leuchtet wird.	
AUDIO - ABTEILUNG							
[1]	LEERLAUFSTROM	—	(E) Einen Gleichspannungsmesser über CP1(L) CP2(R) anschließen.	Volume: 0	VR1(L) VR2(R) (X07-)	13mV	(d)
[2]	MITTEL-EINSTELLUNG DES DOLBY-RAUMKLANGS	(F) Einen AG(1kHz) zu CD Buchse anschließen. (L oder R)	Einen Oszilloskop zwischen TP9 und GND anschließen.	Hauptlautstärke: 0 Den Eingangspegel erhöhen, bis die Wellenform abgeschnitten wird.	VR2 (X14-)	So einstellen, daß die Abschneidung der oberen und unteren Wellenform symmetrisch wird.	(e)
[3]	TAKTSTELLUNG EINSTELLUNG DES DOLBY-RAUMKLANGS	(F) Den Eingangssignalpegel abschneiden.	Einen Oszilloskop zwischen TP9 und GND anschließen.	—	VR1 (X14-)	So einstellen, daß die Höhe der Taktfrequenz(einige 10kHz) minimal wird.	(e)

# ADJUSTMENT/REGLAGE/ABGLEICH

System connections/Raccordements du système/System-Anschlüsse



## VOLTAGE CHECK TABLE

### X05-353X-XX

**IC1**

1 ~ 3	2.36V
4	0V
5	9.2V
6	9.15V
7	9.13V
8	4.27V
9	3.45V
10	3.26V
11	1.26V
12	1.48V
13, 14	0.26V
15	2.39V
16	1.45V
17	6.79V
18, 19	0.05V
20, 21	3.95V
22	2.83V

**IC2**

1	0.75V
2	1.64V
6	0.07V
7	11.16V
8	0.01V
9	0.2V
10	0.06V
11	2.8V
12, 13	5.16V
14	2.05V
15	1.16V
16	0V

**IC3**

1	10.6V
2	2.57V
3	5.85V
4, 5	8.52V
6, 7	2.79V
8	0V
9	5.1V
10, 11	2.55V
12	2.54V
13, 14	2.56V
15	3.19V
16	2.5V

	B	C	E
Q1	2.4V	8.8V	1.7V
Q2	0.6V	1.9V	0V
Q3	1.2V	1.9V	0.6V
Q7	10.5V	11V	11V
Q8	11.2V	0.07V	11V

### X07-235X-XX

**IC1**

3	0V
5	0V
6	0.7V

	B	C	E
Q1 ~ 4	0V	5.4V	-0.7V
Q5 ~ 8	0V	12.2V	5.4V
Q9, 10	12.2V	B - 1.7V	-
Q11, 12	12.2V	B - 1.8V	-
Q13, 14	B - 1.7V	2.2V	B - 1.4V
Q15, 16	B - 1.8V	1.1V	B - 1.4V
Q17, 18	-	C + 2V	0.6V
Q19, 20	C + 2V	-1.1V	C + 1.4V
Q21, 22	1.1V	B	0.5V
Q23, 24	-1.2V	C	-0.6V
Q25 ~ 28	-	-	0V
Q29	-	-	54V

### X09-265X-XX

**IC1, 5, 7, 9**

4	-11.9V
8	11V

**IC2, 3**

1	-11.9V
28	11V

**IC4**

5 ~ 7	-11.9V
12, 13	10.1V
14	11V

	B	C	E
Q1, 2	-11.8V	0V	0V
Q3, 4	0.7V	0V	0V
Q5, 6	0.5V	B	0.01V
Q7, 8	-0.67V	C	-0.01V
Q9, 10	-0.5V	1.1V	-1.1V
Q11	0V	0V	0.6V
Q12	0.17V	-20.1V	0.75V
Q13	0.17V	-20.8V	0.75V
Q14	-20.1V	-0.63V	-20.8V
Q15	-0.02V	1.2V	-0.63V
Q16	1.2V	21V	0.6V
Q17	-0.63V	-20.7V	-0.02V
Q18	0.6V	21V	-0.02V
Q19	-20.7V	-0.02V	-21.3V
Q20	-	-	-0.02V
Q21	12.4V	-2.8V	12.6V
Q22	-	13.6V	31.8V
Q24	0V	0.6V	0V
Q25	0.6V	B - 0.7V	0V
Q26	B - 0.7V	B	B
Q27	-20.7V	-12.8V	-21.3V
Q28	-13.8V	-20.7V	-12.8V
Q29	-0.6V	-13.8V	0V
Q30	-29.8V	-37.5V	-30.9V
Q31	-	-29.8V	5.5V
Q32	-	-11.8V	0V
Q33	2.7V	0V	3.3V
Q34	1.8V	0V	2.5V
Q35	1.9V	0V	2.5V
Q36	-12.2V	5V	-12.8V
Q37	11.8V	17.8V	20.6V
Q38	-11.2V	-11.9V	-11.9V
Q39	-11.2V	10.1V	-11.9V
Q43	11.6V	12.6V	11V

### X14-232X-XX

**IC1**

9, 10	5V
64	0V

**IC2**

13, 14	0V
28	5V

**IC3**

15, 16	5V
19	0V
23	0V
32	0V
42	5V

**IC4, 5, 6, 7**

8	5.5V
9	-30.9V

**IC8, 9**

4	6.8V
11	-12.8V

**IC10**

7	0V
14	5V

**IC11**

1	6.9V
2	-0.6V
3	-7.9V
4	-0.6V
5	-1.2V
6	-0.3V
7	-0.4V
8	-7.0V

	B	C	E
Q2	-	5.5V	-
Q3	1.8V	0V	2.5V
Q9, 10	6.1V	13.1V	5.5V
Q12	-	-	13.1V
Q13	0.7V	POWER ON : 0V POWER OFF : 16.8V	0V
Q18	6.8V	0V	7.5V

### X85-1120-10

**IC1**

1	6.6V
2 ~ 10	0V
11 ~ 14	-6.7V
15	5.2V
16, 17	0.1V
18 ~ 28	0V

**IC2, 3**

1	0V
2 ~ 10	10.7V
11 ~ 14	0V
15	-11.7V
16	0V
18	10.6V
19	0V
20	-11.7V

## X05-353X-XX

IC1	1 ~ 3	2.36V
	4	0V
	5	9.2V
	6	9.15V
	7	9.13V
	8	4.27V
	9	3.45V
	10	3.26V
	11	1.26V
	12	1.48V
	13, 14	0.26V
	15	2.39V
	16	1.45V
	17	6.79V
	18, 19	0.05V
	20, 21	3.95V
	22	2.83V

## X09-265X-XX

IC2	1	0.75V
	2	1.64V
	6	0.07V
	7	11.16V
	8	0.01V
	9	0.2V
	10	0.06V
	11	2.8V
	12, 13	5.16V
	14	2.05V
	15	1.16V
	16	0V

## X14-232X-XX

IC6, 8	1	-11.9V
	7	0V
	13	0V
	16	11V
IC10	1	21V
	3	12.6V

IC1	9, 10	5V
	64	0V
IC2	13, 14	0V
	28	5V
IC3	15, 16	5V
	19	0V
	23	0V
	32	0V
	42	5V

IC4	5 ~ 7	-11.9V
	12, 13	10.1V
	14	11V

IC12	1	7.9V
	2	-0.6V
	3	0.03V
	4	-7.0V
	5	-7.9V
	6	-0.6V
	7	0.2V
	8	0.3V

IC13	1 ~ 7	4.9V
	8, 9	0V
	10 ~ 15	4.9V
	16	10.7V

IC14	1	5.5V
	2	0V
	3	5.3V

IC8, 9	4	6.8V
	11	-12.8V

IC15, 16, 17, 18	4	-12V
	8	11.8V

IC10	7	0V
	14	5V

IC11	1	6.9V
	2	-0.6V
	3	-7.9V
	4	-0.6V
	5	-1.2V
	6	-0.3V
	7	-0.4V
	8	-7.0V

IC12	1	6.9V
	2	-0.6V
	3	-7.9V
	4	-0.6V
	5	-1.2V
	6	-0.3V
	7	-0.4V
	8	-7.0V

IC13	1	6.9V
	2	-0.6V
	3	-7.9V
	4	-0.6V
	5	-1.2V
	6	-0.3V
	7	-0.4V
	8	-7.0V

IC14	1	5.5V
	2	0V
	3	2.5V

IC15, 16, 17, 18	4	-12V
	8	11.8V

IC16	7	0V
	14	5V

IC17	1	5.5V
	2	0V
	3	2.5V

IC18	1	5.5V
	2	0V
	3	2.5V

IC19	1	5.5V
	2	0V
	3	2.5V

IC20	1	5.5V
	2	0V
	3	2.5V

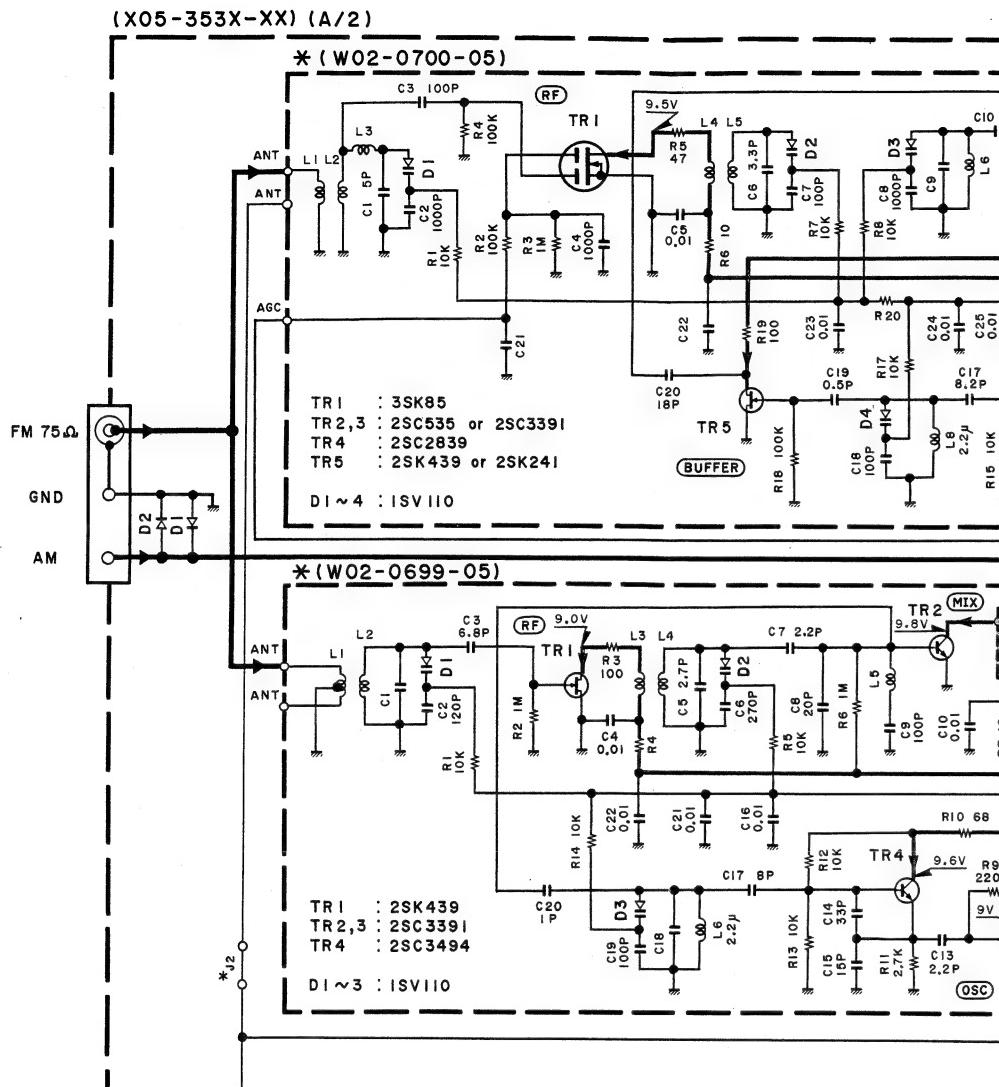
IC21	1	5.5V
	2	0V
	3	2.5V

IC22	1	5.5V
	2	0V
	3	2.5V

IC23	1	5.5V

<tbl

- (X09-265X-XX)  
 • Must always be used when the  $\mu$   
 as microprocessor IC1 (X14).  
 • This circuit does not cause any  
 $\mu$ PD75108CW-200 is used as mic.  
 Furthermore, the -200 cannot be  
 is removed.



(X05-353X-XX)

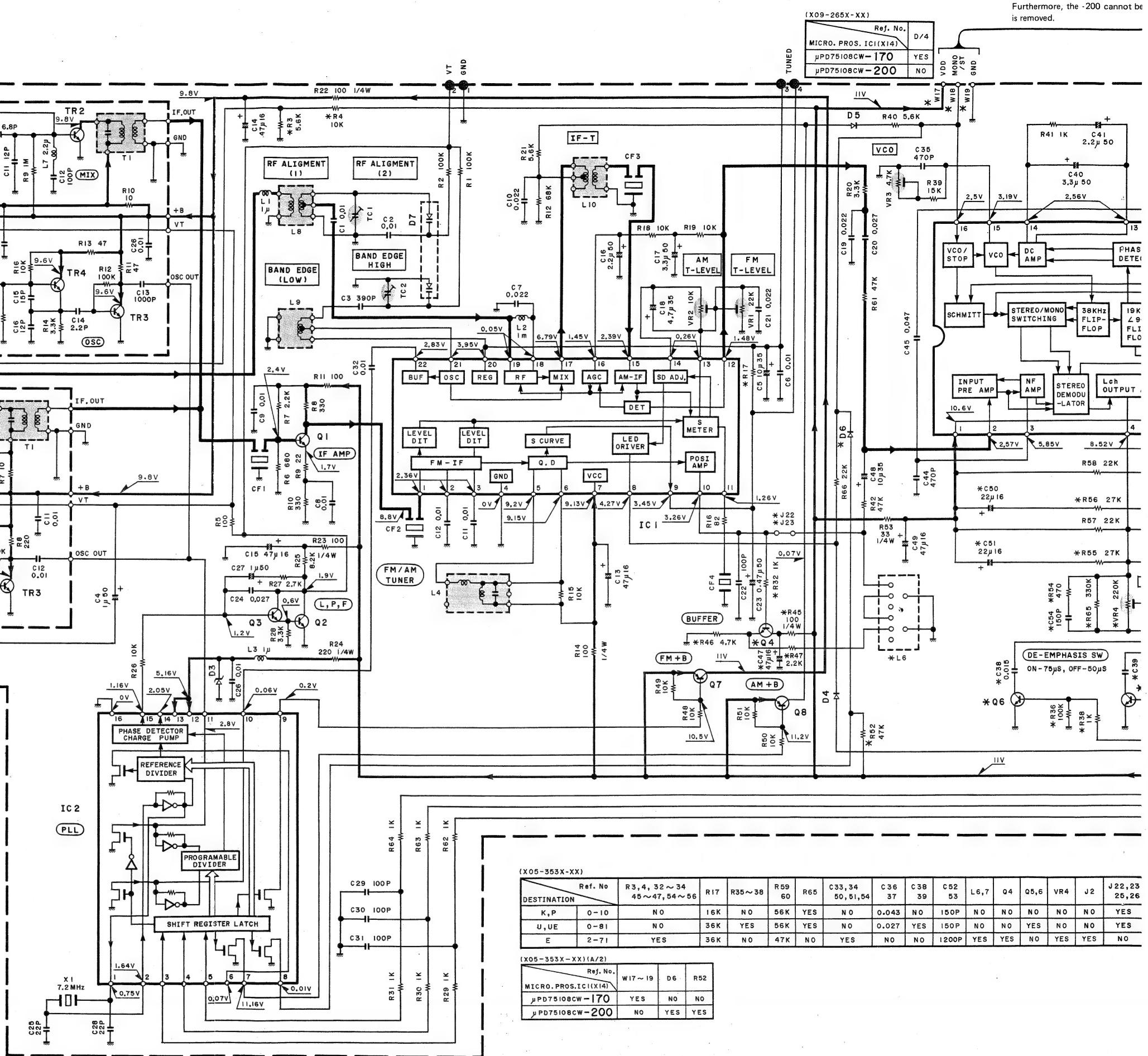
IC 1 : LA1265  
 IC 2 : LM7001  
 IC 3 : AN7470

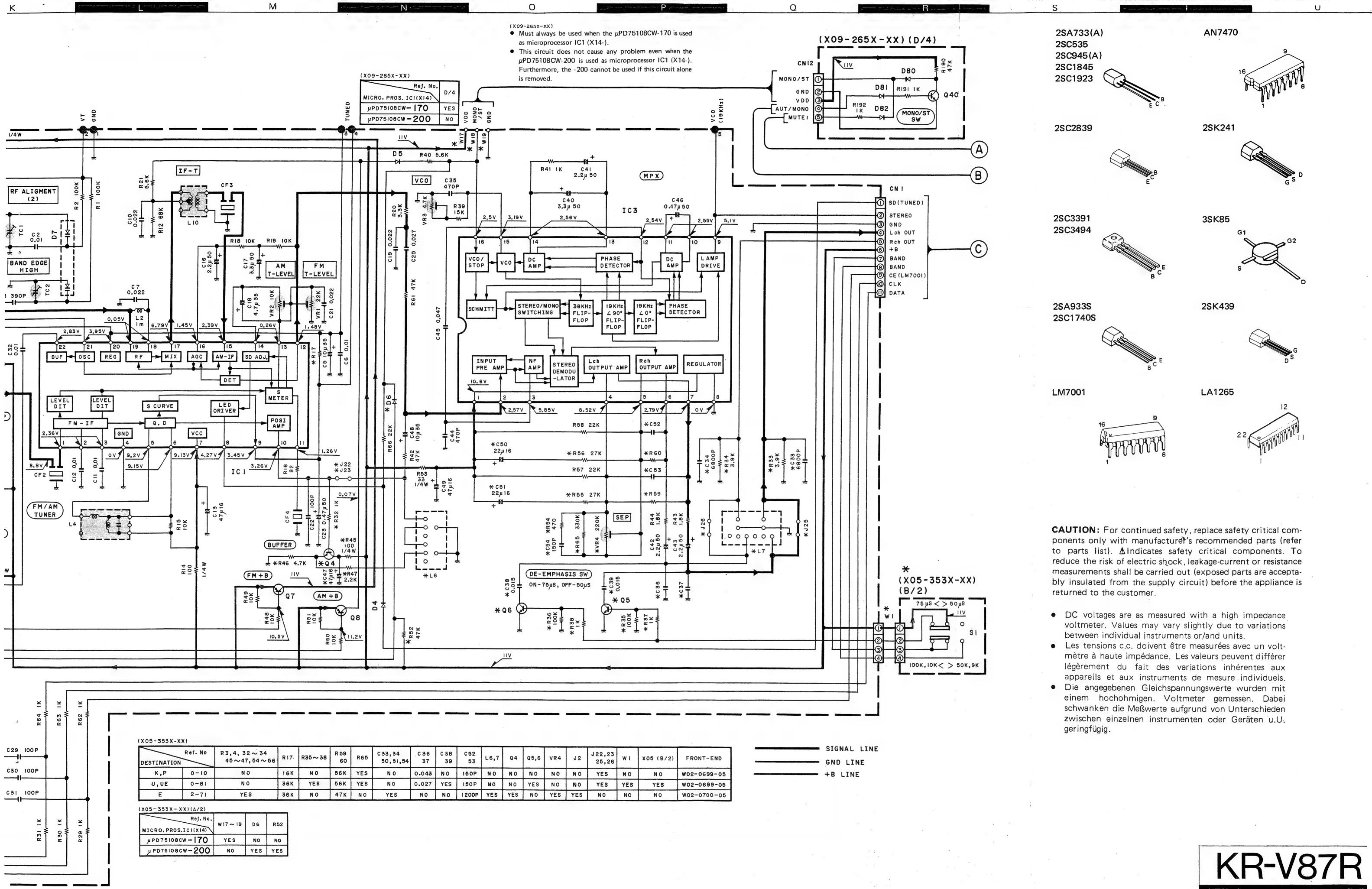
Q1 : 2SC1923 (R,0)  
 Q2, 4~6 : 2SC945(A)(Q,P) or 2SC1740S(Q,R)  
 Q3 : 2SC1845 (F,E)  
 Q7,8 : 2SA733(A)(Q,P) or 2SA933S(Q,R)

D1,2,4~6 : ISSI33 or ISSI176  
 D3 : RD5.1ES(B2) or HZS5.1N(B2)  
 D7 : KVI236(Z2)

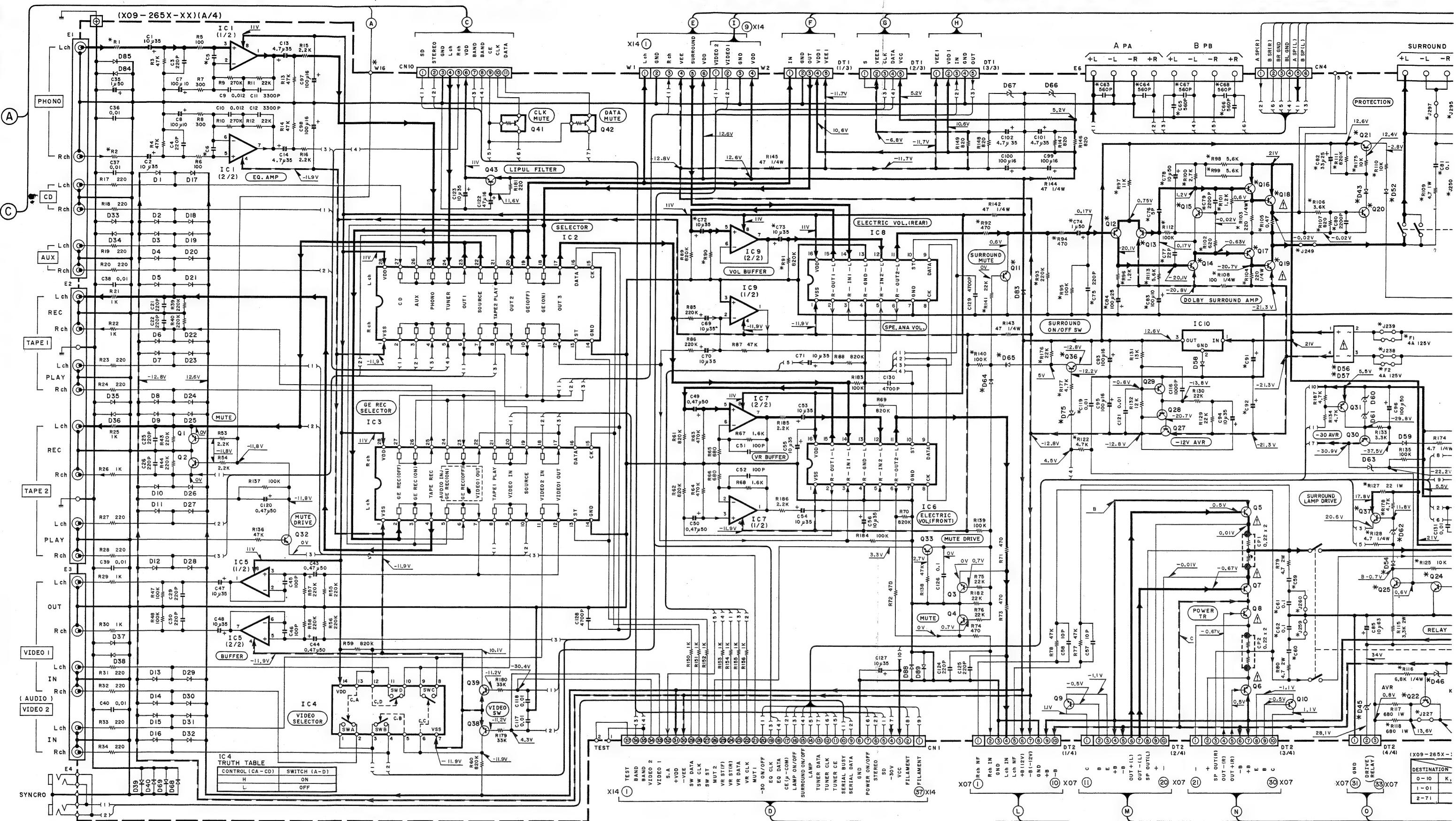
(X09-265X-XX)  
 Q40 : 2SC945(A)(Q,P) or 2SC1740S(Q,R)

D80 ~ 82 : ISSI31 or ISSI178



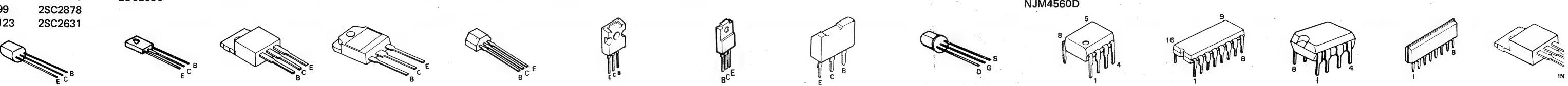


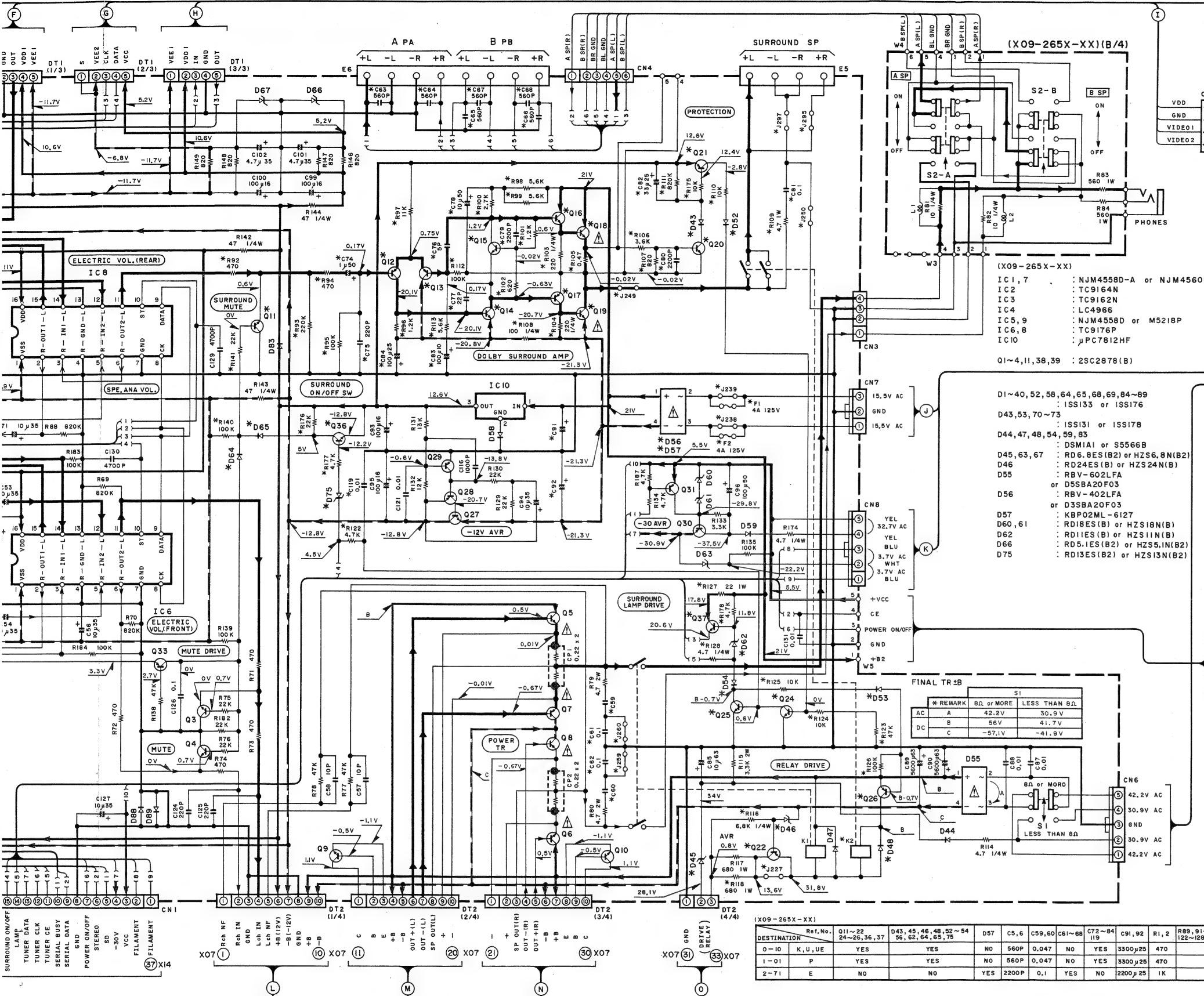
**KR-V87R**  
**KENWOOD**



2SA733(A) 2SC945(A) 2SA1110 2SD1266 2SA1491\* 5 2SA933S 2SC3419 2SB941 DTC144TFF 2SC3851 NJM4558D NJM4558D-A NJM4560D TC9176P M5218P μPC1237HA μPC7812HF

2SA954 2SC1845 2SB772 2SC2590 2SA992 2SC2003 2SC2878 2SA999 2SC2878 2SA1123 2SC2631





2SC3851

NJM4558D  
NJM4558D-A  
NJM4560D

TC9176P

M5218

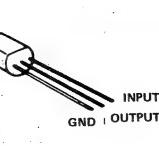
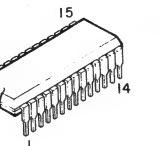
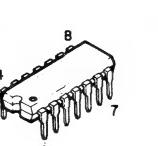
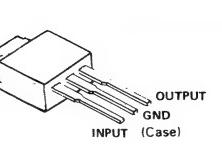
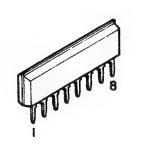
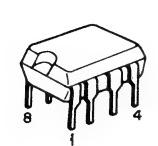
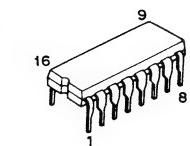
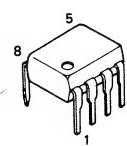
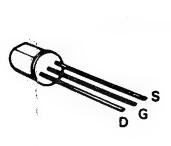
$\mu$ PC1237H

μPC7812HF

LC49

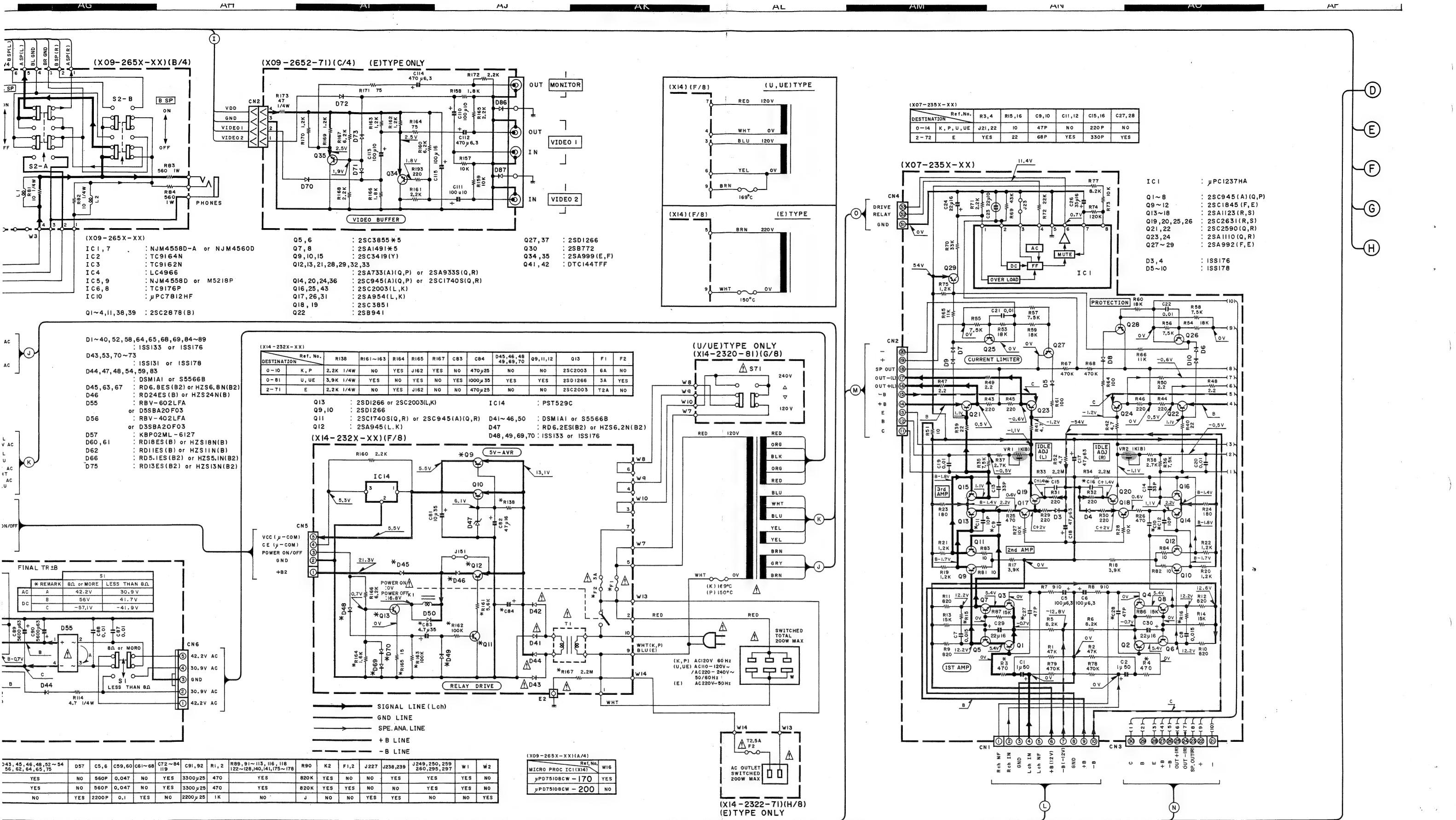
TO  
TO

PST529C

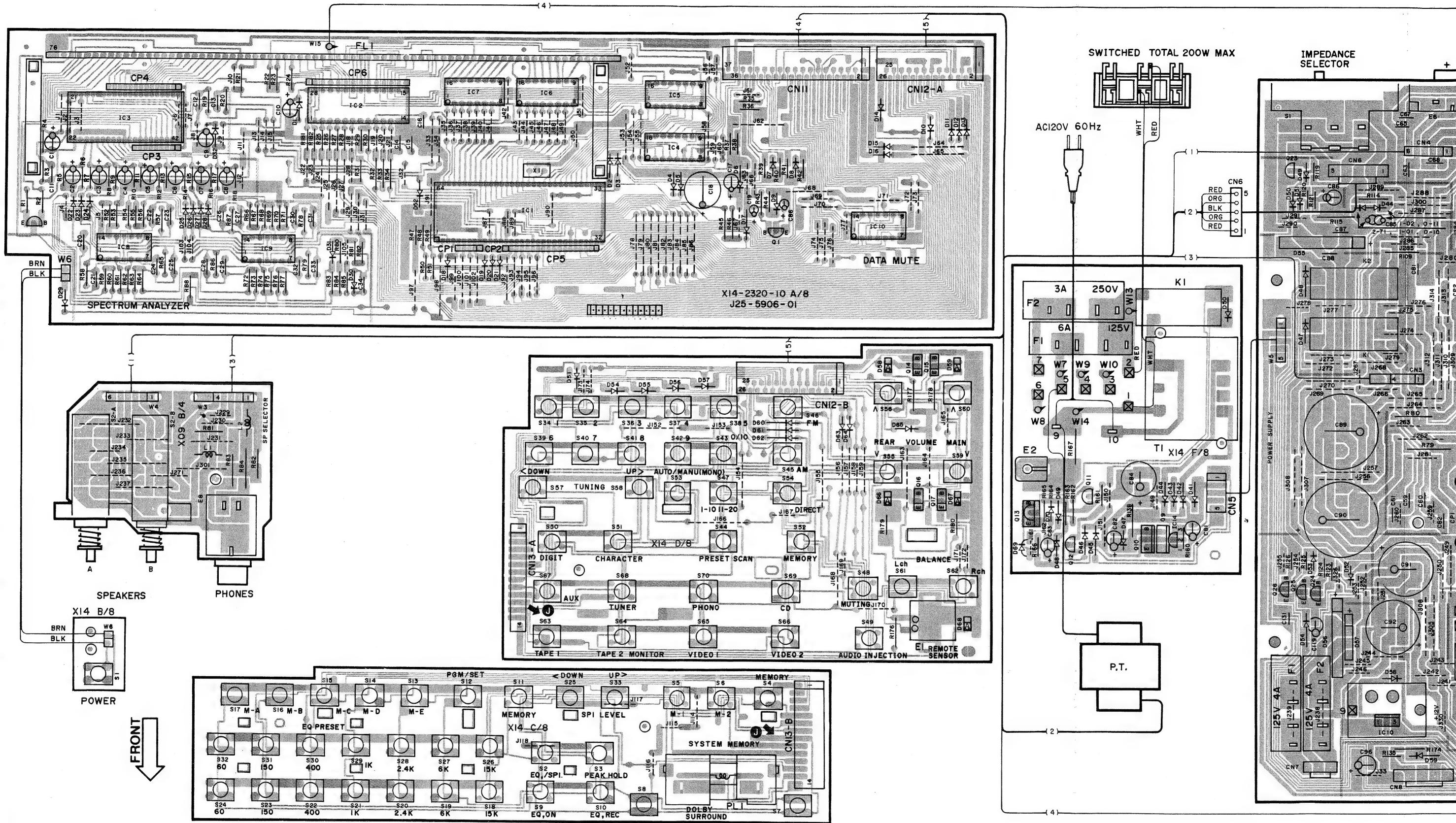


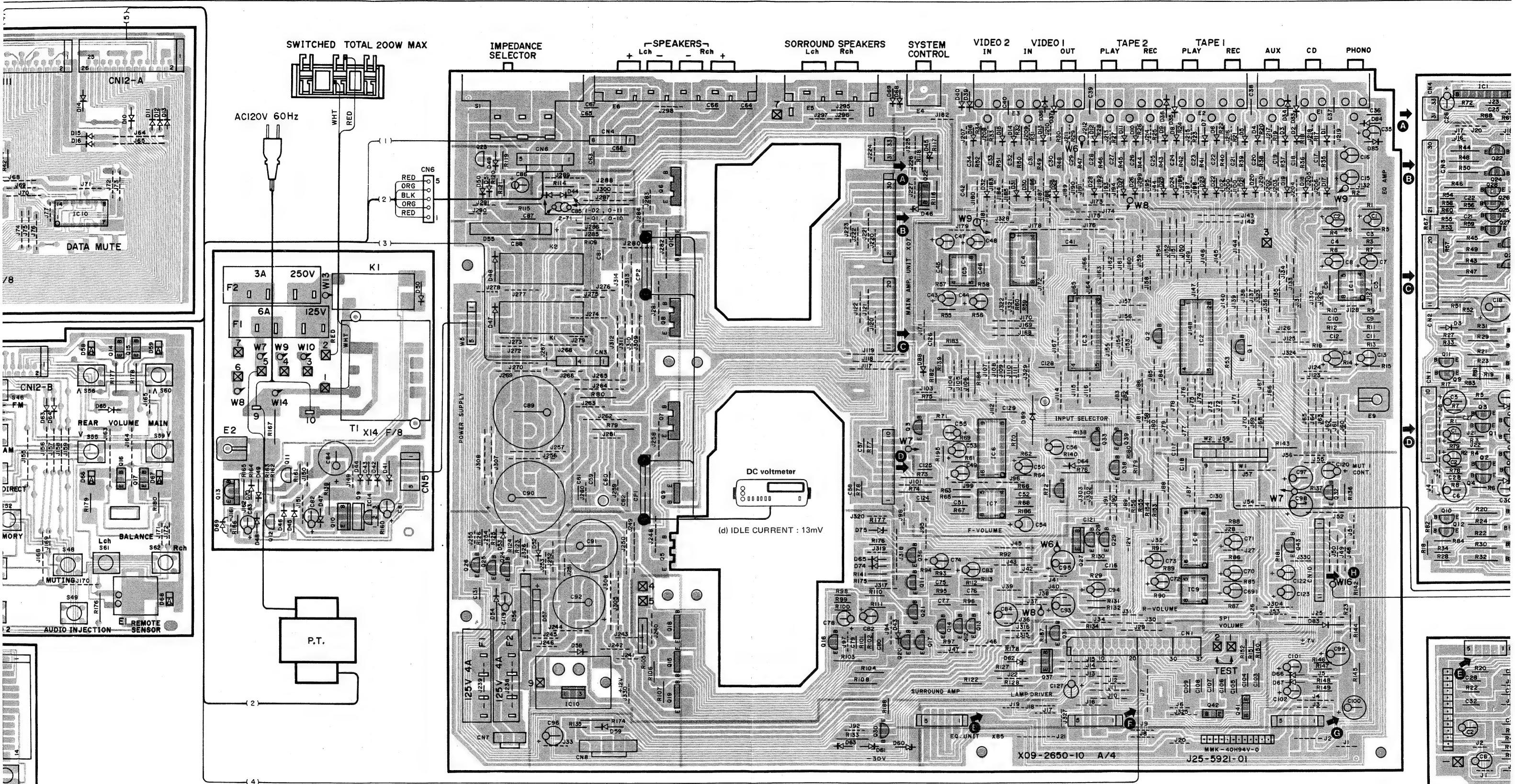
**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  $\Delta$ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

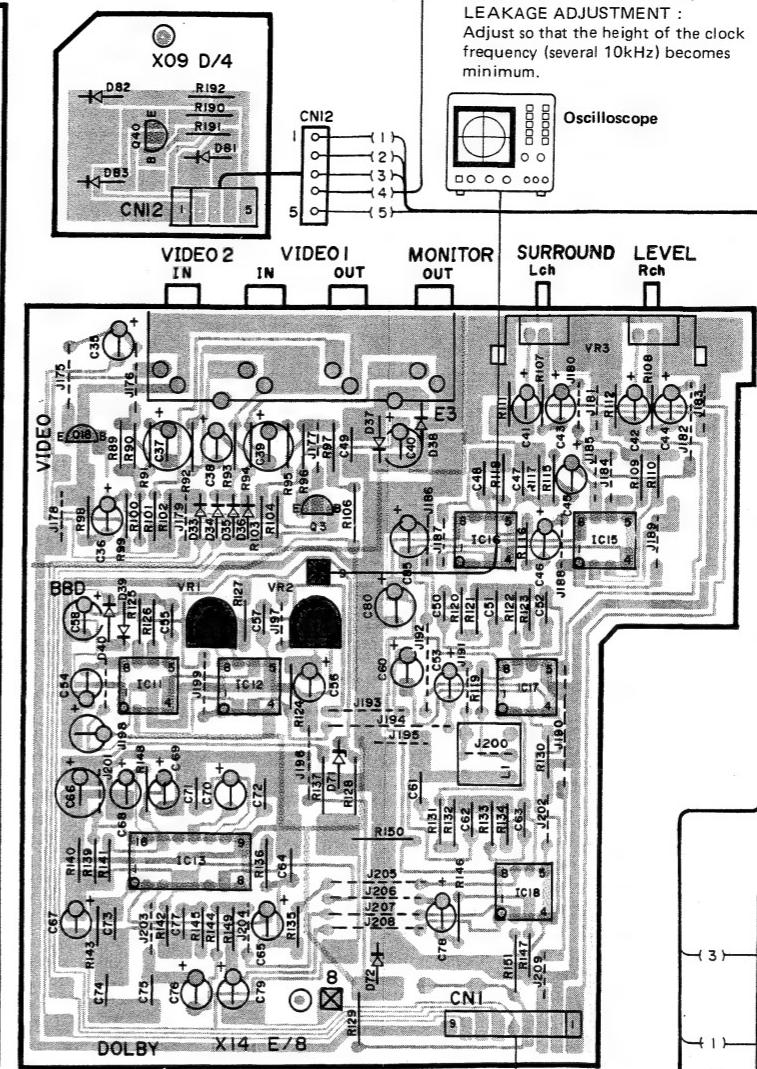
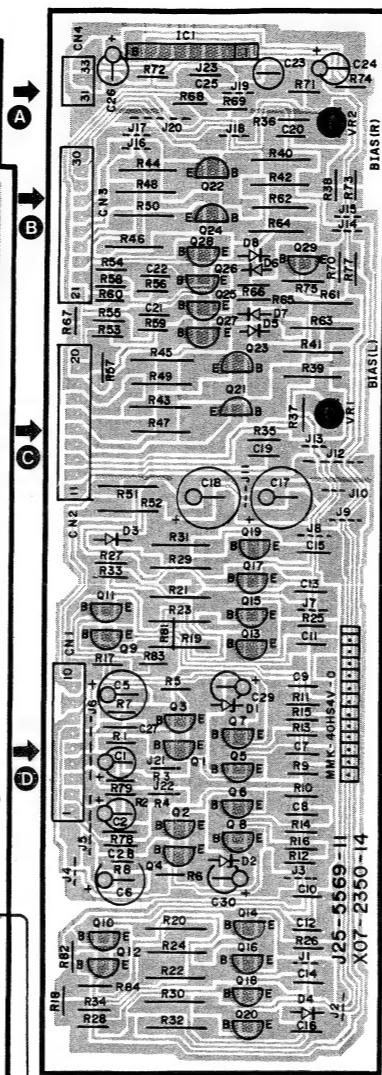
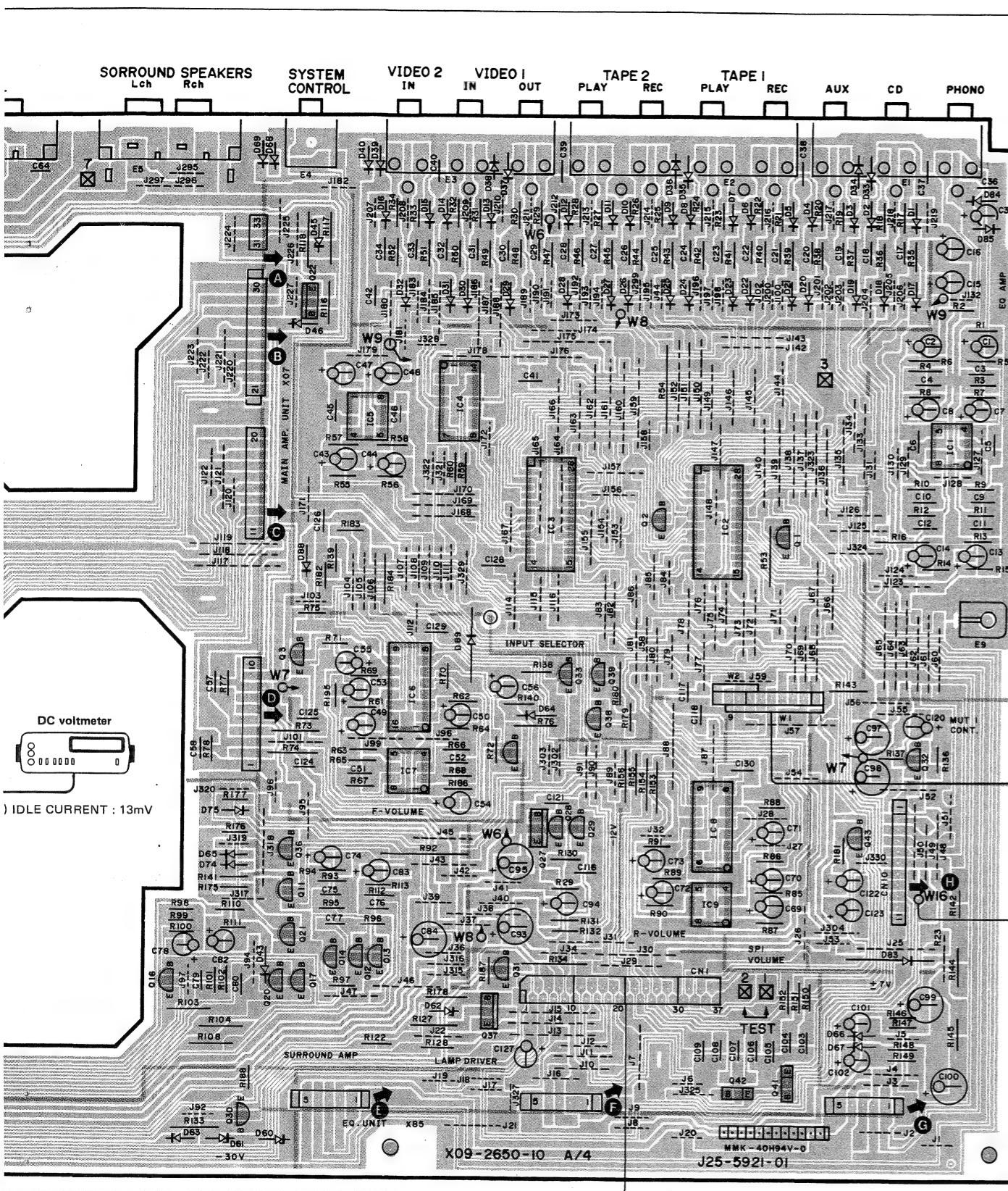
- DC voltag voltmeter. between ir
  - Les tensio mètre à ha légèremen appareils



## **PC BOARD (COMPONENT SIDE VIEW)**

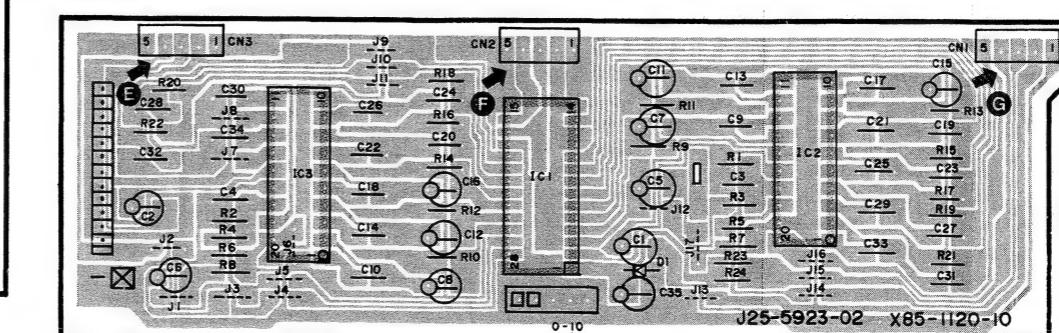




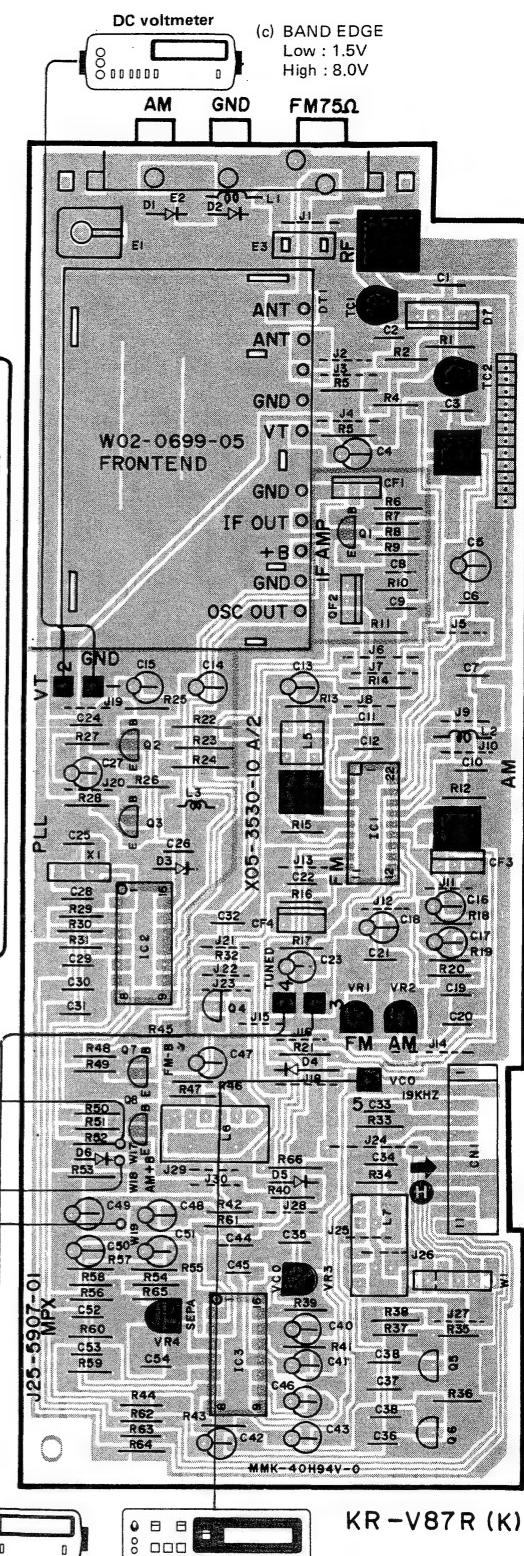


(e) DOLBY SURROUND CENTER  
ADJUSTMENT :  
Adjust so that the upper and lower  
waveform clips becomes  
symmetrical.

DOLBY SURROUND CLOCK  
LEAKAGE ADJUSTMENT :  
Adjust so that the height of the clock  
frequency (several 10kHz) becomes  
minimum.



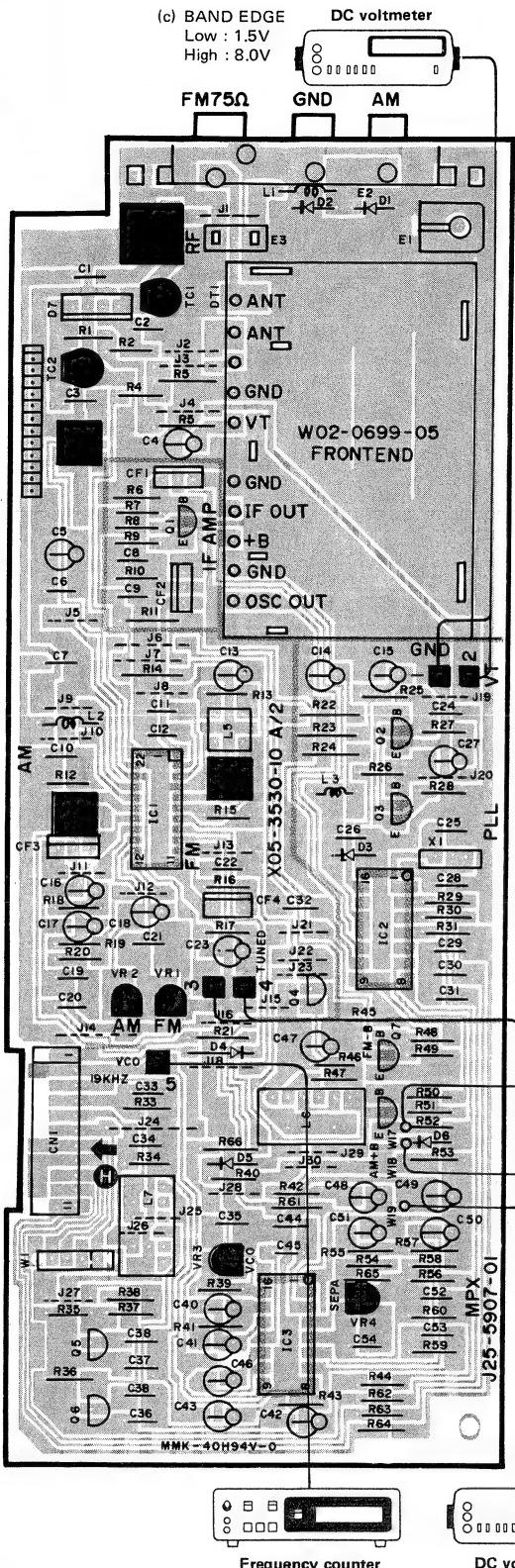
Refer to the schematic diagram for the values of resistors and capacitors



(a) DETECTOR : 0V (b) VCO : 19.00 kHz

32

# PC BOARD (FOIL SIDE VIEW)



(e) DOLBY SURROUND CENTER ADJUSTMENT :  
Adjust so that the upper and lower waveform clips becomes symmetrical.

DOLBY SURROUND CLOCK LEAKAGE ADJUSTMENT :  
Adjust so that the height of the clock frequency (several 10kHz) becomes minimum.

Oscilloscope

LEVEL SURROUND Rch

MONITOR Lch

VIDEO1 OUT IN

VIDEO2 IN

X09 D/4

CN12 5

CN12 5

DB2 5

DB3 5

SI 33

CN4 5

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

30

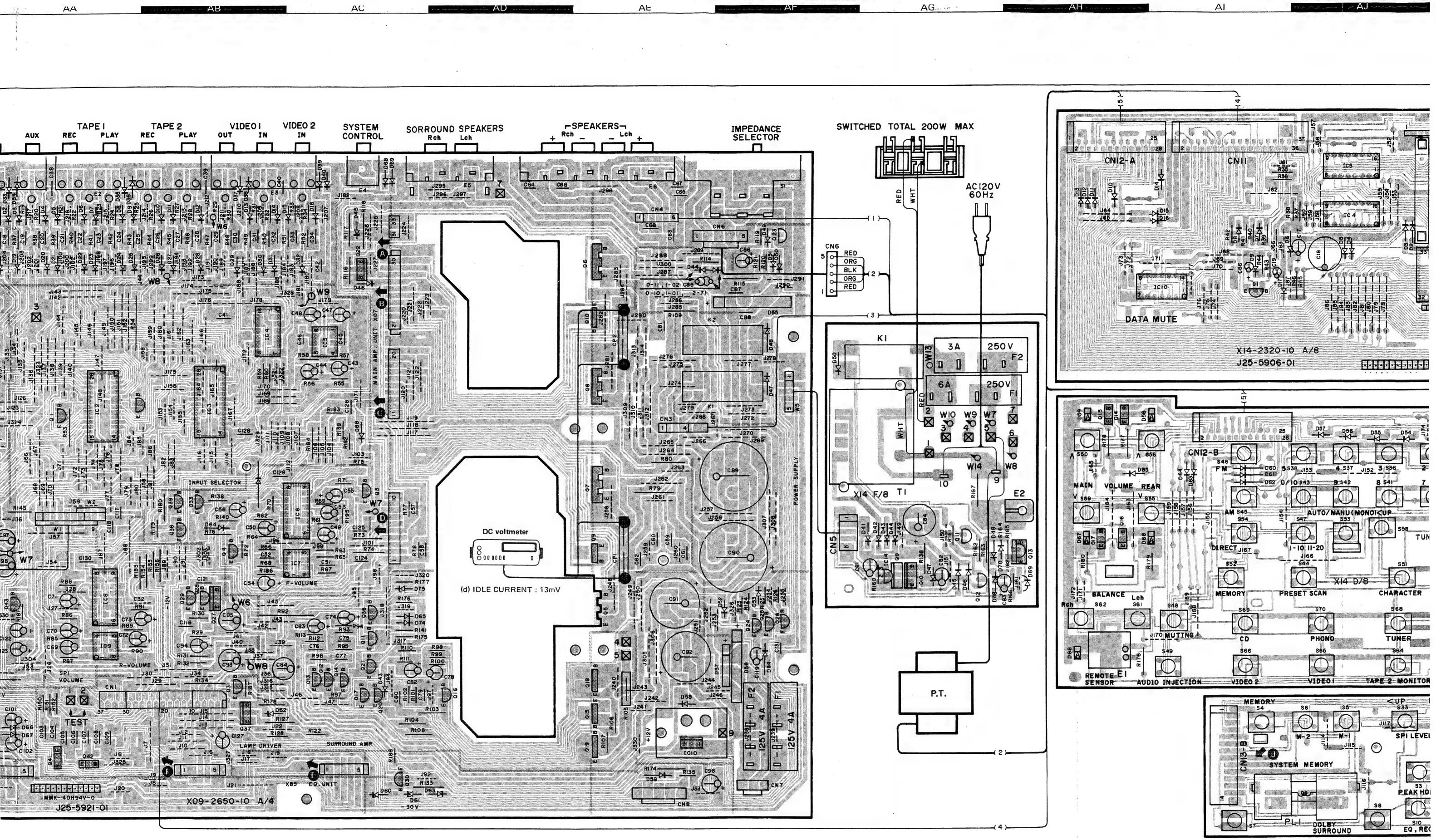
30

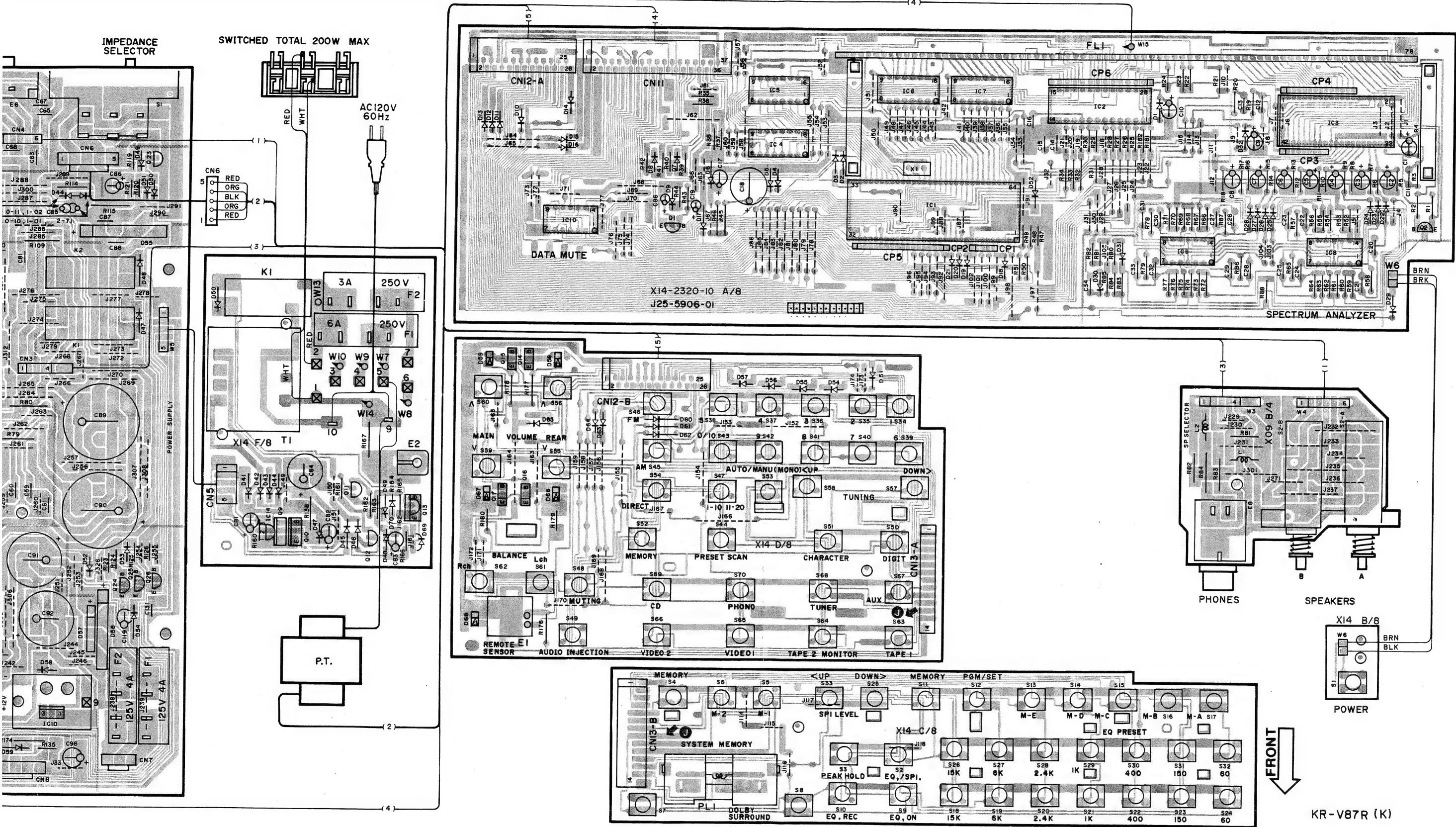
30

30

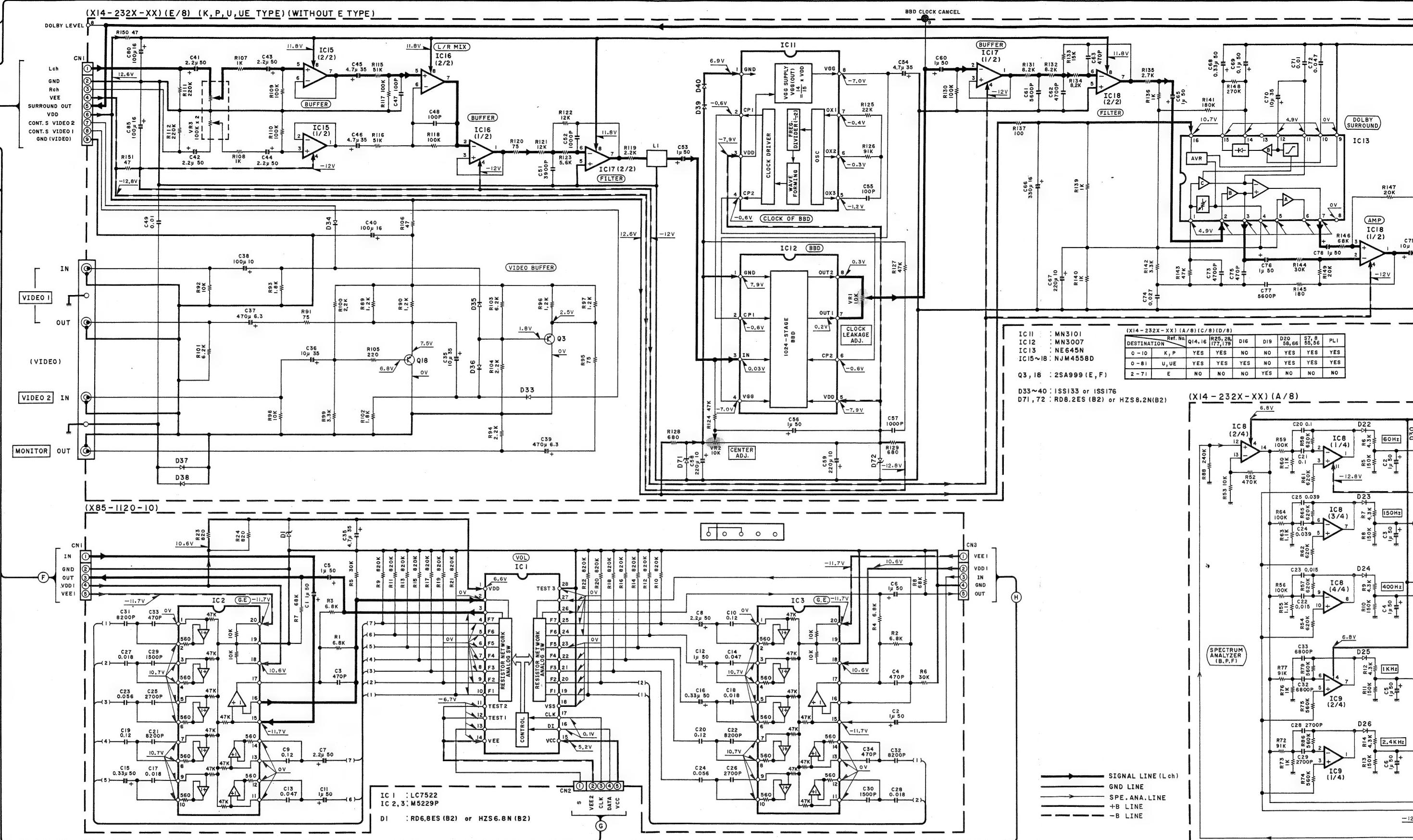
30

30





Refer to the schematic diagram for the values of resistors and capacitors.



2SA999  
2SC945(A)

DTC144EFF

2SC1740S

NJM4558D

NE645N

MN3101

μPD4081BC

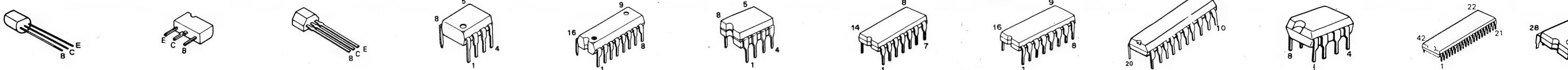
μPA80C  
μPC4574C

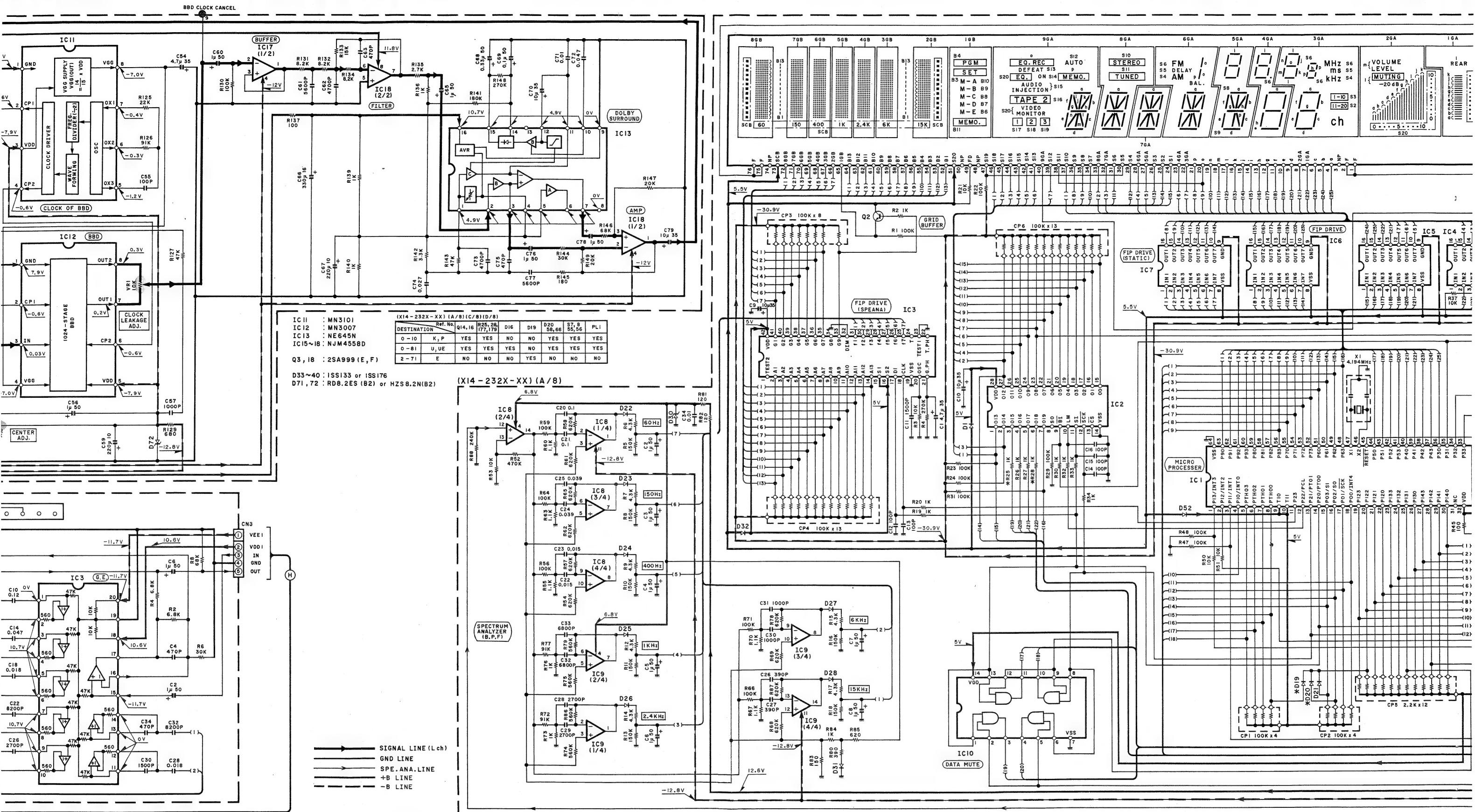
M5229P

MN3007

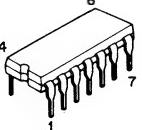
LC7565

LC7522

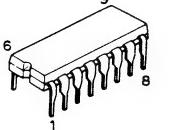




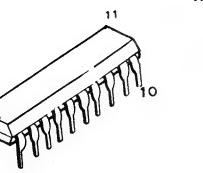
μPD4081BC



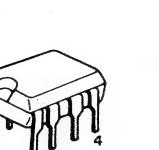
$\mu$ PA80C  
 $\mu$ PC4574C



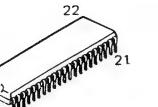
M5229P



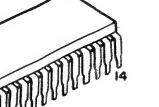
N3007



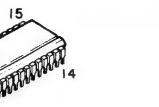
C7565



C7522



6300C

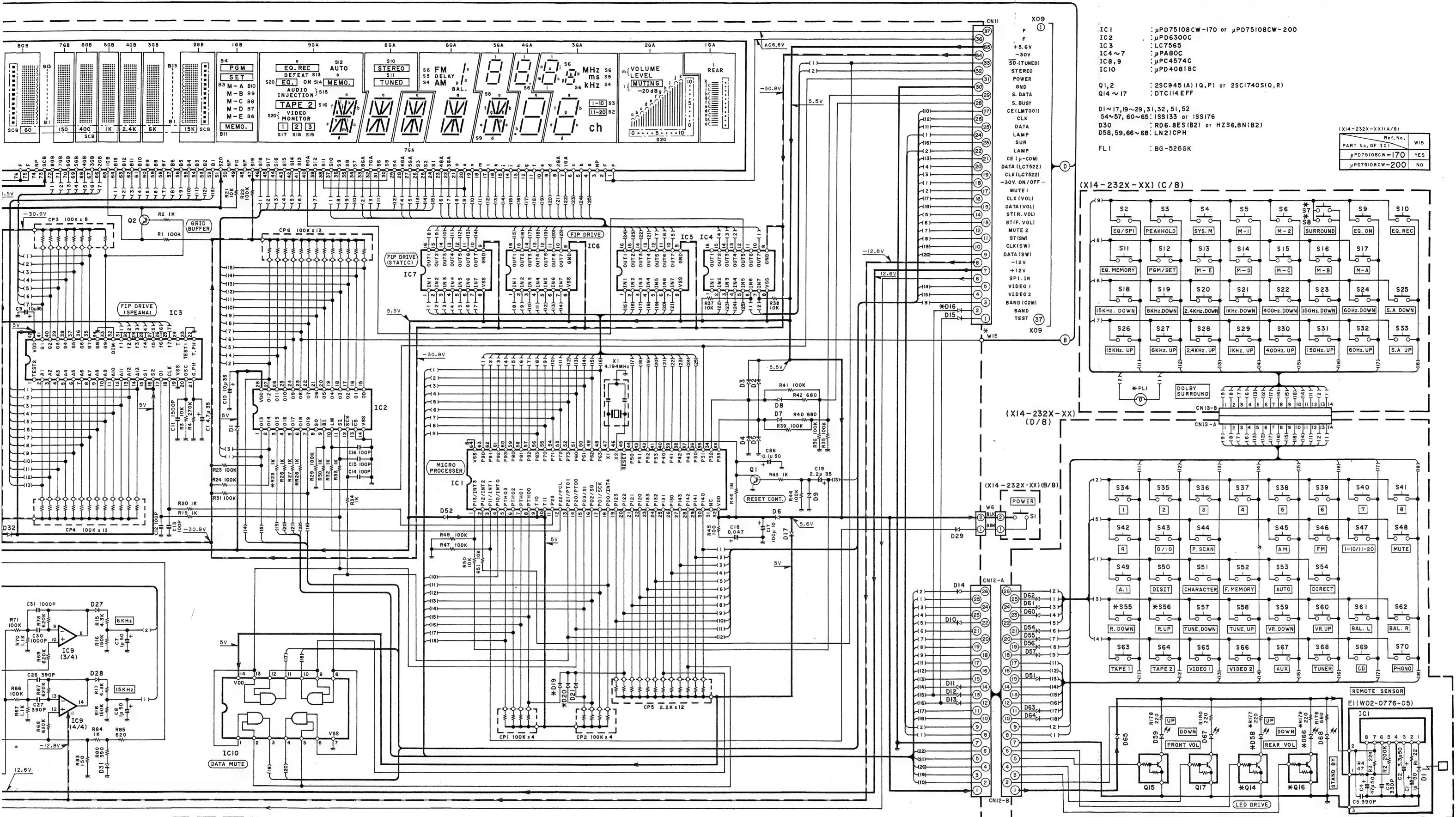


75108CW-170  
75108CW-200



**AUCTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  $\Delta$ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

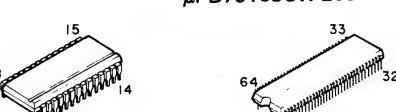
- DC volt voltmètre between
  - Les tens mètre à légèremen appareil:



**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  $\Delta$ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
  - Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig.



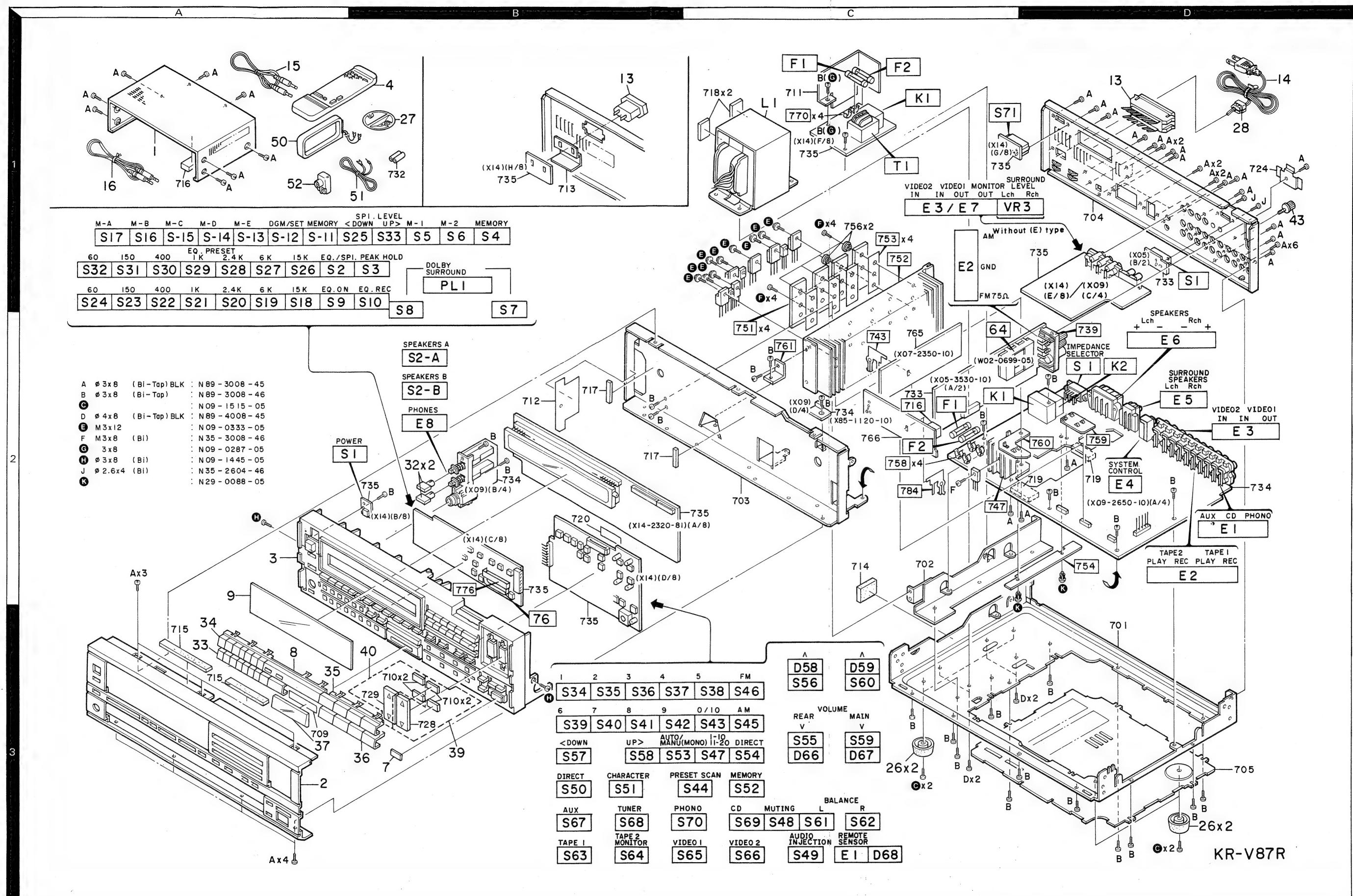
μPD6300C

$\mu$ PD75108CW-170  
 $\mu$ PD75108CW-200

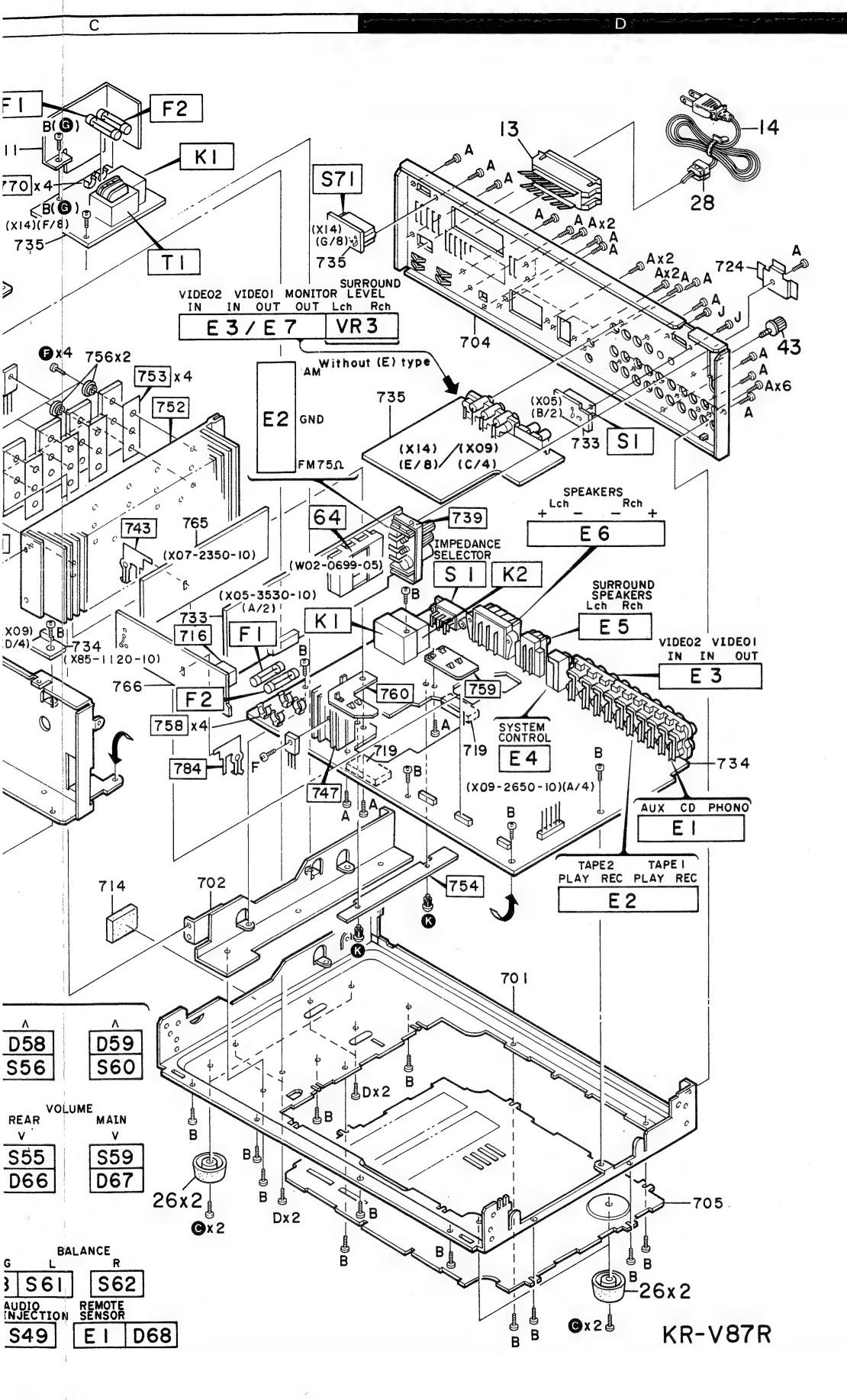
**KR-V87R**  
**KENWOOD**

# KR-V87R KR-V87R

## EXPLODED VIEW



## PARTS LIST



\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Desti- nation 仕	Re- marks 備考
KR-V87R						
1	1A	*	A01-1650-01	METALLIC CABINET	KPUUE	
2	3A	*	A20-5533-02	PANEL	E	
2	3A	*	A20-5534-02	PANEL	KPUUE	
3	2B, 3B	*	A22-0978-01	SUB PANEL	E	
3	2B, 3B	*	A22-0979-01	SUB PANEL	KPUUE	
4	1B		A70-0206-05	REMOTE CONTROLLER ASSY	KUUE	
4	1B		A70-0207-05	REMOTE CONTROLLER ASSY	PE	
7	3D	*	B03-2451-04	DRESSING PLATE	KPUUE	
8	3A	*	B07-1813-04	ESCUCHÉON	E	
8	3A	*	B07-1814-04	ESCUCHÉON	KPUUE	
9	3A	*	B10-0943-03	FRONT GLASS	E	
9	3A	*	B10-0944-03	FRONT GLASS	KPUUE	
-	-		B46-0092-03	WARRANTY CARD	K	
-	-		B46-0094-03	WARRANTY CARD	UUE	
-	-		B46-0095-03	WARRANTY CARD	UUE	
-	-		B46-0121-03	WARRANTY CARD	P	
-	-		B46-0122-13	WARRANTY CARD	E	
-	-	*	B50-8917-00	INSTRUCTION MANUAL (ENGLISH)	KUUE	
-	-	*	B50-8918-00	INSTRUCTION MANUAL (ENG, FRE)	P	
-	-	*	B50-9051-00	INSTRUCTION MANUAL (F, G, D)	E	
-	-		B58-0223-04	CAUTION CARD (PRE-SET 120V)	U	
-	-		B58-0513-04	CAUTION CARD (PRESET220-240)	UE	
-	-		B58-0803-13	CAUTION CARD	E	
-	-		B59-0092-00	SERVICE DIRECTORY	UUE	
13	1D		E03-0055-05	AC OUTLET	E	
13	1D		E03-0086-05	AC OUTLET	KPUUE	
14	1D		E30-0459-05	AC POWER CORD	E	
14	1D		E30-0812-05	AC POWER CORD	UUE	
14	1D		E30-2209-05	AC POWER CORD	KP	
15	1A		E30-0977-05	CORD WITH PLUG	E	
16	1A		E30-1392-05	CORD WITH PLUG	E	
-	-	*	H01-7861-04	ITEM CARTON CASE		
-	-	*	H10-3602-02	POLYSTYRENE FOAMED FIXTURE		
-	-	*	H10-3603-02	POLYSTYRENE FOAMED FIXTURE		
-	-	*	H25-0181-04	PROTECTION BAG (150X260X0.05)		
-	-	*	H25-0224-04	PROTECTION BAG (800X400X0.03)		
-	-		H25-0232-04	PROTECTION BAG (235X350X0.03)		
26	3D		J02-0170-04	FOOT		
27	1B		J19-2815-04	ANTENNA HOLDER		
28	1D		J42-0083-05	POWER CORD BUSHING		
-	-		J61-0307-05	WIRE BAND		
32	2B		K27-1304-04	KNOB (BUTTON) SP		
33	3A	*	K29-2993-03	KNOB (GE)		
34	3A	*	K29-2994-03	KNOB (GE)		
35	2B	*	K29-2995-03	KNOB (SEL)		
36	3A	*	K29-2996-03	KNOB (SEL)		
37	3A	*	K29-2997-04	KNOB (MATRIX SURROUND)	KPUUE	
37	3A	*	K29-2998-04	KNOB (MATRIX SURROUND)	E	
39	3B	*	K29-3251-04	KNOB ASSY (VOLUME MAIN)	KPUUE	
40	3B	*	K29-3252-04	KNOB ASSY (VOLUME REAR)	KPUUE	
40	3B	*	K29-3253-04	KNOB ASSY (VOLUME REAR)	E	

E: Scandinavia &amp; Europe K: USA P: Canada

U: PX(Far East, Hawaii) T: England M: Other Areas

UE : AAFES(Europe) X: Australia

△ indicates safety critical components.

# KR-V87R KR-V87R

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Desti- nation 仕向	Re- marks 備考
<b>KR-V87R</b>						
1	1A	*	A01-1650-01	METALLIC CABINET PANEL	KPUUE	
2	3A	*	A20-5533-02	PANEL	E	
2	3A	*	A20-5534-02	PANEL	KPUUE	
3	2B, 3B	*	A22-0978-01	SUB PANEL	E	
3	2B, 3B	*	A22-0979-01	SUB PANEL	KPUUE	
4	1B		A70-0206-05	REMOTE CONTROLLER ASSY	KUUE	
4	1B		A70-0207-05	REMOTE CONTROLLER ASSY	PE	
7	3D	*	B03-2451-04	DRESSING PLATE	KPUUE	
8	3A	*	B07-1813-04	ESCUtCHEON	E	
8	3A	*	B07-1814-04	ESCUtCHEON	KPUUE	
9	3A	*	B10-0943-03	FRONT GLASS	E	
9	3A	*	B10-0944-03	FRONT GLASS	KPUUE	
			B46-0092-03	WARRANTY CARD	K	
			B46-0094-03	WARRANTY CARD	UUE	
			B46-0095-03	WARRANTY CARD	UUE	
			B46-0121-03	WARRANTY CARD	P	
			B46-0122-13	WARRANTY CARD	E	
		*	B50-8917-00	INSTRUCTION MANUAL(ENGLISH)	KUUE	
		*	B50-8918-00	INSTRUCTION MANUAL(ENG, FRE)	P	
		*	B50-9051-00	INSTRUCTION MANUAL(F, G, D)	E	
			B58-0223-04	CAUTION CARD (PRE-SET 120V)	U	
			B58-0513-04	CAUTION CARD (PRESET220-240)	UE	
			B58-0803-13	CAUTION CARD	E	
			B59-0092-00	SERVICE DIRECTORY	UUE	
13	1D		E03-0055-05	AC OUTLET	E	
13	1D		E03-0086-05	AC OUTLET	KPUUE	
14	1D		E30-0459-05	AC POWER CORD	E	
14	1D		E30-0812-05	AC POWER CORD	UUE	
14	1D		E30-2209-05	AC POWER CORD	KP	
15	1A		E30-0977-05	CORD WITH PLUG	E	
16	1A		E30-1392-05	CORD WITH PLUG	E	
		*	H01-7861-04	ITEM CARTON CASE		
		*	H10-3602-02	POLYSTYRENE FOAMED FIXTURE		
		*	H10-3603-02	POLYSTYRENE FOAMED FIXTURE		
			H25-0181-04	PROTECTION BAG (150X260X0.05)		
			H25-0224-04	PROTECTION BAG (800X400X0.03)		
			H25-0232-04	PROTECTION BAG (235X350X0.03)		
26	3D		J02-0170-04	FOOT		
27	1B		J19-2815-04	ANTENNA HOLDER		
28	1D		J42-0083-05	POWER CORD BUSHING		
			J61-0307-05	WIRE BAND		
32	2B	*	K27-1304-04	KNOB (BUTTON) SP		
33	3A	*	K29-2993-03	KNOB (GE)		
34	3A	*	K29-2994-03	KNOB (GE)		
35	2B	*	K29-2995-03	KNOB (SEL)		
36	3A	*	K29-2996-03	KNOB (SEL)		
37	3A	*	K29-2997-04	KNOB (MATRIX SURROUND)	KPUUE	
37	3A	*	K29-2998-04	KNOB (MATRIX SURROUND)	E	
39	3B	*	K29-3251-04	KNOB ASSY (VOLUME MAIN)	KPUUE	
40	3B	*	K29-3252-04	KNOB ASSY (VOLUME REAR)	KPUUE	
40	3B	*	K29-3253-04	KNOB ASSY (VOLUME REAR)	E	

E: Scandinavia & Europe K: USA P: Canada

U: PX(Far East, Hawaii) T: England M: Other Areas

UE : AAFES(Europe) X: Australia

△ indicates safety critical components.

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Desti- nation 仕向	Re- marks 備考
▲ L1	1C	*	L01-5381-05	POWER TRANSFORMER	K	
▲ L1	1C	*	L01-5382-05	POWER TRANSFORMER	E	
▲ L1	1C	*	L01-5385-05	POWER TRANSFORMER	UUE	
▲ L1	1C	*	L01-5387-05	POWER TRANSFORMER	P	
	43		N09-0287-05	SEMS(TAPTITE SCREW)(3X8)		
	C		N08-0128-35	BINDING POST (GND)		
	G		N09-1515-05	TAPPING SCREW (3X8)		
	50	1A	N09-1445-05	SET SCREW (M3X8)		
	51	2B	T90-0104-25	LOOP ANTENNA		
	52	1A	T90-0121-05	T TYPE ANTENNA		
			T90-0136-05	ANTENNA ADAPTER		
<b>TUNER UNIT (X05-3530-10)</b>						
	C1 , 2		CK45FF1H103Z	CERAMIC 0.010UF Z		
	C3		CC93FC1H391J	CERAMIC 390PF J		
	C4		CEO4LW1H010M	ELECTR0 1.0UF 50WV		
	C5		CEO4LW1V100M	ELECTR0 10UF 35WV		
	C6		CK45FF1H103Z	CERAMIC 0.010UF Z		
	C7		CK45FF1H223Z	CERAMIC 0.022UF Z		
	C8 , 9		CK45FF1H103Z	CERAMIC 0.010UF Z		
	C10		CK45FF1H223Z	CERAMIC 0.022UF Z		
	C11 , 12		CK45FF1H103Z	CERAMIC 0.010UF Z		
	C13 -15		CEO4LW1C470M	ELECTR0 47UF 16WV		
	C16		CEO4LW1H2R2M	ELECTR0 2.2UF 50WV		
	C17		CEO4LW1H3R3M	ELECTR0 3.3UF 50WV		
	C18		CEO4LW1V4R7M	ELECTR0 4.7UF 35WV		
	C19		CF92FV1H223J	MF 0.022UF J		
	C20		CF92FV1H273J	MF 0.027UF J		
	C21		CK45FF1H223Z	CERAMIC 0.022UF Z		
	C22		CC45FSL1H101J	CERAMIC 100PF J		
	C23		CEO4LW1H4R7M	ELECTR0 0.47UF 50WV		
	C24		CF92FV1H273J	MF 0.027UF J		
	C25		CC45FCH1H220J	CERAMIC 22PF J		
	C26		CK45FF1H103Z	CERAMIC 0.010UF Z		
	C27		CEO4LW1H010M	ELECTR0 1.0UF 50WV		
	C28		CC45FCH1H220J	CERAMIC 22PF J		
	C29 -31		CC45FSL1H101J	CERAMIC 100PF J		
	C32		CK45FF1H103Z	CERAMIC 0.010UF Z		
	C33 , 34		CF92FV1H682J	MF 6800PF J		E
	C35		CC93FC1H471J	CERAMIC 470PF J		
	C36 , 37		CF92FV1H273J	MF 0.027UF J	UUE	
	C36 , 37		CF92FV1H433J	MF 0.043UF J	KP	
	C38 , 39		CF92FV1H153J	MF 0.015UF J	UUE	
	C40		CEO4LW1H3R3M	ELECTR0 3.3UF 50WV		
	C41 -43		CEO4LW1H2R2M	ELECTR0 2.2UF 50WV		
	C44		CK45FB1H471K	CERAMIC 470PF K		
	C45		CF92FV1H473J	MF 0.047UF J		
	C46		CEO4LW1HR47M	ELECTR0 0.47UF 50WV		
	C47		CEO4LW1C470M	ELECTR0 47UF 16WV		E
	C48		CEO4LW1V100M	ELECTR0 10UF 35WV		
	C49		CEO4LW1C470M	ELECTR0 47UF 16WV		
	C50 , 51		CEO4LW1C220M	ELECTR0 22UF 16WV		
	C52 , 53		CC45FSL1H151J	CERAMIC 150PF J	KPUUE	
	C52 , 53		CF92FV1H122J	MF 1200PF J	E	
	C54		CC45FSL1H151J	CERAMIC 150PF J	E	

E: Scandinavia & Europe K: USA P: Canada

U: PX(Far East, Hawaii) T: England M: Other Areas

UE : AAFES(Europe) X: Australia

△ indicates safety critical components.

# PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
TC1 , 2			C05-0303-05	CERAMIC TRIMMER CAPACITOR(20PF)		
E2			E20-0318-05	SCREW TERMINAL BOARD(2P) ANT		
CF1 , 2			L72-0531-05	CERAMIC FILTER	KPUUE	
CF1 , 2			L72-0536-05	CERAMIC FILTER	E	
CF3			L72-0099-05	CERAMIC FILTER		
CF4			L72-0096-05	CERAMIC FILTER		
L1			L40-1092-17	SMALL FIXED INDUCTOR(1UH,M)		
L2			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)		
L3			L40-1092-17	SMALL FIXED INDUCTOR(1UH,M)		
L4			L30-0439-15	FM IFT		
L6			L79-0125-05	LC FILTER	E	
L7			L79-0739-05	LC FILTER	E	
L8			L31-0509-05	MW-RF COIL		
L9			L32-0277-15	MW OSCILLATING COIL		
L10			L30-0362-05	AM IFT		
X1			L77-1122-05	CRYSTAL RESONATOR		
R14			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R22 , 23			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R24			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R45			RD14GB2E101J	FL-PROOF RD 100 J 1/4W	E	
R53			RD14GB2E330J	FL-PROOF RD 33 J 1/4W		
VR1			R12-3128-05	TRIMMING POT. (FM LEVEL)		
VR2			R12-3126-05	TRIMMING POT. (AM LEVEL)		
VR3			R12-1089-05	TRIMMING POT. (VCO)		
VR4			R12-5060-05	TRIMMING POT. (SPEAKER)	E	
S1			S31-2072-05	SLIDE SWITCH	UUE	
D1 , 2			ISS133	DIODE		
D1 , 2			ISS176	DIODE		
D3			HZ55.1N(B2)	ZENER DIODE		
D3			RD5.1ES(B2)	ZENER DIODE		
D4 - 6			ISS133	DIODE		
D4 - 6			ISS176	DIODE		
D7			KV1236(Z2)	VARIABLE CAPACITANCE DIODE		
IC1			LA1265	IC(FM/AM TUNER)		
IC2			LM7001	IC(PLL FREQUENCY SYNTHESIZER)		
IC3			AN7470	IC(FM MPX)		
Q1			ZSC1923(R,N)	TRANSISTOR		
Q2			ZSC1740S(Q,R)	TRANSISTOR		
Q2			ZSC945(A)(Q,P)	TRANSISTOR		
Q3			ZSC1845(F,E)	TRANSISTOR		
Q4			ZSC1740S(Q,R)	TRANSISTOR		
Q4			ZSC945(A)(Q,P)	TRANSISTOR	E	
Q5 , 6			ZSC1740S(Q,R)	TRANSISTOR	UUE	
Q5 , 6			ZSC945(A)(Q,P)	TRANSISTOR	UUE	
Q7 , 8			2SA733(A)(Q,P)	TRANSISTOR		
Q7 , 8			2SA933S(Q,R)	TRANSISTOR		
64	2D		WD2-0699-05	FM FRONT-END ASSY	KPUUE	
64	2D		WD2-0700-05	FM FRONT-END ASSY	E	
<b>POWER AMPLIFIER UNIT (X07-2350-14)</b>						
C1 , 2			CE04LW1H010M	ELECTRO	1.0UF	50WV
C5 , 6			CE04LW0J101M	ELECTRO	100UF	6.3WV
C7 , 8			CF92FV1H153J	MF	0.015UF	J

E: Scandinavia &amp; Europe K: USA P: Canada

U: PX(Far East, Hawaii) T: England M: Other Areas

UE : AAFES(Europe) X: Australia

⚠ indicates safety critical components.

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格				Desti- nation 仕向	Re- marks 備考
C9 ,10			CC45FSL1H470J	CERAMIC	47PF	J		KPUJE	
C9 ,10			CC45FSL1H680J	CERAMIC	68PF	J		E	
C11 ,12			CC45FSL1H100D	CERAMIC	10PF	D		E	
C13 ,14			CC45FSL1H330J	CERAMIC	33PF	J			
C15 ,16			CC45FSL1H221J	CERAMIC	220PF	J		KPUJE	
C15 ,16			CC45FSL1H331J	CERAMIC	330PF	J		E	
C17 ,18			CE04LW1J470M	ELECTRO	47UF	63WV			
C19 -22			CK45FF1H103Z	CERAMIC	0.010UF	Z			
C23			C90-1333-05	NP-ELEC	22UF	10WV			
C24			CE04LW1C220M	ELECTRO	22UF	16WV			
C26			CE04LW1C330M	ELECTRO	33UF	16WV			
C27 ,28			CC45FSL1H470J	CERAMIC	47PF	J		E	
R19 -22			RD14GB2E122J	FL-PROOF	RD	1.2K	J	1/4W	
R23 ,24			RD14GB2E181J	FL-PROOF	RD	180	J	1/4W	
R29 -32			RD14GB2E221J	FL-PROOF	RD	220	J	1/4W	
R39 ,40			RD14GB2E220J	FL-PROOF	RD	22	J	1/4W	
R41 ,42			RD14GB2E4R7J	FL-PROOF	RD	4.7	J	1/4W	
R43 -46			RD14GB2E221J	FL-PROOF	RD	220	J	1/4W	
R47 -50			RD14GB2E2R2J	FL-PROOF	RD	2.2	J	1/4W	
R51			RD14GB2E100J	FL-PROOF	RD	10	J	1/4W	
R52			RD14GB2E4R7J	FL-PROOF	RD	4.7	J	1/4W	
R61			RD14GB2E101J	FL-PROOF	RD	100	J	1/4W	
R64			R12-1070-05	TRIMMING POT. (1K)					
VR1 ,2				BIAS-L,R					
D3 ,4			ISS176	DIODE					
D5 -8			ISS178	DIODE					
D9 ,10			ISS178	DIODE					
IC1			UPC1237HA	IC(POWER AMP)					
Q1 -8			2SC945(A)(Q,P)	TRANSISTOR					
Q9 -12			2SC1845(F,E)	TRANSISTOR					
Q13 -18			2SA1123(R,S)	TRANSISTOR					
Q19 ,20			2SC2631(R,S)	TRANSISTOR					
Q21 ,22			2SC2590(Q,R)	TRANSISTOR					
Q23 ,24			2SA1110(Q,R)	TRANSISTOR					
Q25 ,26			2SC2631(R,S)	TRANSISTOR					
Q27 -29			2SA992(F,E)	TRANSISTOR					

## AUDIO UNIT (X09-2650-10)

C1 ,2			CE04LW1V100M	ELECTRO	10UF	35WV			
C3 ,4			CC45FSL1H221J	CERAMIC	220PF	J			
C5 ,6			CK45FB1H222K	CERAMIC	2200PF	K		E	
C5 ,6			CK45FB1H561K	CERAMIC	560PF	K		KPUJE	
C7 ,8			CE04LW1A101M	ELECTRO	100UF	10WV			
C9 ,10			CF92FV1H123J	MF	0.012UF	J			
C11 ,12			CF92FV1H332J	MF	3300PF	J			
C13 ,14			CE04LW1V4R7M	ELECTRO	4.7UF	35WV			
C21 ,22			CC45FSL1H221J	CERAMIC	220PF	J			
C25 ,26			CC45FSL1H221J	CERAMIC	220PF	J		E	
C29 ,30			CC45FSL1H221J	CERAMIC	220PF	J		KPUJE	
C29 ,30			CC45FSL1H221J	CERAMIC	220PF	J		E	
C35			CE04LW1H010M	ELECTRO	1.0UF	50WV		KPUJE	
C36 -40			CK45FF1H103Z	CERAMIC	0.010UF	Z			
C43 ,44			CE04LW1HR47M	ELECTRO	0.47UF	50WV			

E: Scandinavia &amp; Europe K: USA

P: Canada

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE : AAFES(Europe)

X: Australia

△ indicates safety critical components.

# PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格			Desti- nation 仕 向	Re- marks 備考
C45 ,46			CC45FSL1H101J	CERAMIC	100PF	J		
C47 ,48			CE04LW1V100M	ELECTRO	10UF	35WV		
C49 ,50			CE04LW1HR47M	ELECTRO	0.47UF	50WV		
C51 ,52			CC45FSL1H101J	CERAMIC	100PF	J		
C53 -56			CE04LW1V100M	ELECTRO	10UF	35WV		
C57 ,58			CC45FSL1H100D	CERAMIC	10PF	D		
C59 -62			CF92FV1H104J	MF	0.10UF	J	E	KPUUE
C59 ,60			CF92FV1H473J	MF	0.047UF	J		
C63 -68			CK45FB1H561K	CERAMIC	560PF	K	E	
C69 -71			CE04LW1V100M	ELECTRO	10UF	35WV	E	
C69 -73			CE04LW1V100M	ELECTRO	10UF	35WV		KPUUE
C74			CE04LW1H010M	ELECTRO	1.0UF	50WV		KPUUE
C75			CC45FSL1H221J	CERAMIC	220PF	J		KPUUE
C76			CC45FSL1H050C	CERAMIC	5.0PF	C		KPUUE
C77			CC45FSL1H220J	CERAMIC	22PF	J		KPUUE
C78			CE04LW1H100M	ELECTRO	10UF	50WV		KPUUE
C79 ,80			CK45FB1H222K	CERAMIC	2200PF	K		KPUUE
C81			CF92FV1H104J	MF	0.10UF	J		KPUUE
C82			CE04LW1E330M	ELECTRO	33UF	25WV		KPUUE
C83			CE04LW1A101M	ELECTRO	100UF	10WV		KPUUE
C84		*	CE04LW1E101M	ELECTRO	1000UF	25WV		KPUUE
C85		*	CE04LW1J100M	ELECTRO	10UF	63WV		
C87 ,88		*	CK45FF1H103Z	CERAMIC	0.010UF	Z		
C89 ,90		*	C90-1500-05	ELECTRO	5600UF	63WV		
C91 ,92		*	CE04LW1E222M	ELECTRO	2200UF	25WV	E	
C91 ,92		*	CE04LW1E332M	ELECTRO	3300UF	25WV		KPUUE
C93			CE04LW1C101M	ELECTRO	100UF	16WV		
C94			CE04LW1V100M	ELECTRO	10UF	35WV		
C95			CE04LW1C101M	ELECTRO	100UF	16WV		
C96			CE04LW1H101M	ELECTRO	100UF	50WV		
C97 -100			CE04LW1C101M	ELECTRO	100UF	16WV		
C101,102			CE04LW1V4R7M	ELECTRO	4.7UF	35WV		
C110,111			CE04LW1A101M	ELECTRO	100UF	10WV	E	
C112			CE04LW0J471M	ELECTRO	470UF	6.3WV	E	
C113			CE04LW1A101M	ELECTRO	100UF	10WV	E	
C114			CE04LW0J471M	ELECTRO	470UF	6.3WV	E	
C115			CE04LW1C101M	ELECTRO	100UF	16WV	E	
C116			CK45FB1H102K	CERAMIC	1000PF	K		
C117-119			CK45FF1H103Z	CERAMIC	0.010UF	Z		KPUUE
C117,118			CK45FF1H103Z	CERAMIC	0.010UF	Z	E	
C120			CE04LW1HR47M	ELECTRO	0.47UF	50WV		
C121			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C122			CE04LW1C470M	ELECTRO	47UF	16WV		
C123			CE04LW1V100M	ELECTRO	10UF	35WV		
C124,125			CC45FSL1H221J	CERAMIC	220PF	J		
C126			CF92FV1H104J	MF	0.10UF	J		
C127			CE04LW1V100M	ELECTRO	10UF	35WV		
C128-130			CK45FF1H472Z	CERAMIC	4700PF	Z		
C131			CK45FF1H103Z	CERAMIC	0.010UF	Z		
CN1		*	E10-3701-05	FLAT CABLE CONNECTOR				
CN3		*	E10-0408-05	FLAT CABLE CONNECTOR				
CN4		*	E10-0614-05	FLAT CABLE CONNECTOR				
E1			E13-0621-05	PHONE JACK(6P) PHONE, VIDEO				
E2			E13-0820-05	PHONE JACK(8P) TAPE1,2			E	

E: Scandinavia &amp; Europe K: USA P: Canada

U: PX(Far East, Hawaii) T: England M: Other Areas

UE : AAFES(Europe) X: Australia

△ indicates safety critical components.

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
E3			E13-0621-05	PHONE JACK(6P) PHONE,VIDEO	E	
E4			E11-0165-05	MINIATURE PHONE JACK(SYSTEM)	KPUUE	
E4			E11-0168-05	MINIATURE PHONE JACK(SYSTEM)	E	
E5			E20-0475-05	LOCK TERMINAL BOARD(SURROUND SP)	KPUUE	
E6			E20-0823-05	LOCK TERMINAL BOARD(8P) SPEAKER		
E7			E13-0487-05	PHONE JACK	E	
E8			E11-0162-05	PHONE JACK (3P) PHONES		
A F1 ,2	2C		F05-4028-05	FUSE (UL)	P	
L1 ,2			L39-0085-05	PHASE-COMPENSATION COIL		
E K			N09-0333-05	TAPPING SCREW (3X12)	P	
			N29-0088-05	PUSH RIVET (3X6.3)		
CP1 ,2			R90-0187-05	MULTI-COMP	0.22X2	K 5W
R79 ,80			RS14KB3D4R7J	FL-PROOF RS	4.7	J 2W
RB1 ,82			RD14GB2E100J	FL-PROOF RD	10	J 1/4W
RB3 ,84			RS14KB3A561J	FL-PROOF RS	560	J 1W
R103,104			RD14GB2E221J	FL-PROOF RD	220	J 1/4W
R105			R92-0110-05	METAL-PLATE	0.47	K 2W
R108			RD14GB2E101J	FL-PROOF RD	100	J 1/4W
R109			RS14KB3A4R7J	FL-PROOF RS	4.7	J 1W
R114			RD14GB2E4R7J	FL-PROOF RD	4.7	J 1/4W
R115			RS14KB3D332J	FL-PROOF RS	3.3K	J 2W
R116			RD14GB2E682J	FL-PROOF RD	6.8K	J 1/4W
R117			RS14KB3A122J	FL-PROOF RS	1.2K	J 1W
R117,118			RS14KB3A681J	FL-PROOF RS	680	J 1W
R127			RS14KB3A220J	FL-PROOF RS	22	J 1W
R128			RD14GB2E4R7J	FL-PROOF RD	4.7	J 1/4W
R133			RS14KB3A332J	FL-PROOF RS	3.3K	J 1W
R142-145			RD14GB2E470J	FL-PROOF RD	47	J 1/4W
R173			RD14GB2E470J	FL-PROOF RD	47	J 1/4W
R174			RD14GB2E4R7J	FL-PROOF RD	4.7	J 1/4W
K1			S51-2078-05	MAGNETIC RELAY	E	
K1 ,2			S51-2078-05	MAGNETIC RELAY	KPUUE	
S1			S31-2136-05	SLIDE SWITCH		
S2			S42-2156-05	MULTIPLE PUSH SWITCH		
D1 -40			ISS133	DIODE		
D1 -40			ISS176	DIODE		
D43			ISS131	DIODE	KPUUE	
D43			ISS178	DIODE	KPUUE	
D44			DSM1A1	DIODE		
D44			S5566B	DIODE		
D45			HZS6.8N(B2)	ZENER DIODE		
D45			RD6.8ES(B2)	ZENER DIODE		
D46			HZS24N(B)	ZENER DIODE	KPUUE	
D46			RD24ES(B)	ZENER DIODE	KPUUE	
D47			DSM1A1	DIODE	E	
D47			S5566B	DIODE	E	
D47 ,48			DSM1A1	DIODE	KPUUE	
D47 ,48			S5566B	DIODE	KPUUE	
D52			ISS133	DIODE	KPUUE	
D52			ISS176	DIODE	KPUUE	
D53			ISS131	DIODE	KPUUE	
D53			ISS178	DIODE	KPUUE	

E: Scandinavia &amp; Europe K: USA P: Canada

U: PX(Far East, Hawaii) T: England M: Other Areas

UE: AAFES(Europe) X: Australia

▲ indicates safety critical components.

# PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新 品	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
D54			DSM1A1	DIODE		
D54			S5566B	DIODE	KPUUE	
D55			D55BA20F03	DIODE	KPUUE	
D55			RBV-602LFA	DIODE		
D56			D35BA20F03	DIODE	KPUUE	
D56			RBV-402LFA	DIODE		
D57			KBP02ML-6127	DIODE	E	
D58			ISS133	DIODE		
D58			ISS176	DIODE		
D59			DSM1A1	DIODE		
D59			S5566B	DIODE		
D60 ,61			HZS1BN(B)	ZENER DIODE		
D60 ,61			RD18ES(B)	ZENER DIODE		
D62			HZS11N(B)	ZENER DIODE	KPUUE	
D62			RD11ES(B)	ZENER DIODE	KPUUE	
D63			HZS6. 8N(B2)	ZENER DIODE		
D63			RD6. 8ES(B2)	ZENER DIODE		
D64 ,65			ISS133	DIODE	KPUUE	
D64 ,65			ISS176	DIODE	KPUUE	
D66			HZS5. 1N(B2)	ZENER DIODE		
D66			RD5. 1ES(B2)	ZENER DIODE		
D67			HZS6. 8N(B2)	ZENER DIODE		
D67			RD6. 8ES(B2)	ZENER DIODE		
D68 ,69			ISS133	DIODE		
D68 ,69			ISS176	DIODE		
D70 -73			ISS131	DIODE	E	
D70 -73			ISS178	DIODE	E	
D75			HZS13N(B2)	ZENER DIODE	KPUUE	
D75			RD13ES(B2)	ZENER DIODE	KPUUE	
D80 -82			ISS131	DIODE	E	
D80 -82			ISS178	DIODE		
D83			DSM1A1	DIODE		
D83			S5566B	DIODE		
D84 -89			ISS133	DIODE	E	
D84 -89			ISS176	DIODE	E	
D84 ,85			ISS133	DIODE	KPUUE	
D84 ,85			ISS176	DIODE	KPUUE	
D88 ,89			ISS133	DIODE	KPUUE	
D88 ,89			ISS176	DIODE	KPUUE	
IC1			NJM4558D-A	IC(NP AMP X2)		
IC1			NJM4560D	IC(NP AMP X2)		
IC2			TC9164N	IC(16CH BILATERAL SELECTOR SW)		
IC3			TC9162N	IC(ANALOG SWITCH ARRAY)		
IC4			LC4966	IC(CMOS LOGIC BILATERAL SW)		
IC5			M5218P	IC(NP AMP X2)		
IC5			NJM4558D	IC(NP AMP X2)		
IC6			TC9176P	IC(2CH ELECTRONIC VOLUME)		
IC7			NJM4558D-A	IC(NP AMP X2)		
IC7			NJM4560D	IC(NP AMP X2)		
IC8			TC9176P	IC(2CH ELECTRONIC VOLUME)		
IC9			M5218P	IC(NP AMP X2)		
IC9			NJM4558D	IC(NP AMP X2)		
IC10			UPC7812HF	IC(VOLTAGE REGULATOR/ +12V)		
Q1 -4			2SC2878(B)	TRANSISTOR		
Q5 ,6			2SC3855*5	TRANSISTOR		

E: Scandinavia &amp; Europe K: USA P: Canada

U: PX(Far East, Hawaii) T: England M: Other Areas

UE : AAFES(Europe) X: Australia

△ indicates safety critical components.

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Desti- nation 仕 向	Re- marks 備考
Q7 ,8			2SA1491*5	TRANSISTOR		
Q9 ,10			2SC3419(Y)	TRANSISTOR	KPUUE	
Q11			2SC2878(B)	TRANSISTOR	KPUUE	
Q12 ,13			2SA733(A)(Q,P)	TRANSISTOR	KPUUE	
Q12 ,13			2SA933S(Q,R)	TRANSISTOR	KPUUE	
Q14			2SC1740S(Q,R)	TRANSISTOR	KPUUE	
Q14			2SC945(A)(Q,P)	TRANSISTOR	KPUUE	
Q15			2SC3419(Y)	TRANSISTOR	KPUUE	
Q16			2SC2003(L,K)	TRANSISTOR	KPUUE	
Q17			2SA954(L,K)	TRANSISTOR	KPUUE	
Q18 ,19			2SC3851	TRANSISTOR	KPUUE	
Q20			2SC1740S(Q,R)	TRANSISTOR	KPUUE	
Q20			2SC945(A)(Q,P)	TRANSISTOR	KPUUE	
Q21			2SA733(A)(Q,P)	TRANSISTOR	KPUUE	
Q21			2SA933S(Q,R)	TRANSISTOR	KPUUE	
Q22			2SB941	TRANSISTOR	KPUUE	
Q24			2SC1740S(Q,R)	TRANSISTOR	KPUUE	
Q24			2SC945(A)(Q,P)	TRANSISTOR	KPUUE	
Q25			2SC2003(L,K)	TRANSISTOR	KPUUE	
Q26			2SA954(L,K)	TRANSISTOR	KPUUE	
Q27			2SD1266	TRANSISTOR		
Q28 ,29			2SA733(A)(Q,P)	TRANSISTOR		
Q28 ,29			2SA933S(Q,R)	TRANSISTOR		
Q30			2SB772	TRANSISTOR		
Q31			2SA954(L,K)	TRANSISTOR		
Q32 ,33			2SA733(A)(Q,P)	TRANSISTOR	E	
Q32 ,33			2SA933S(Q,R)	TRANSISTOR	KPUUE	
Q34 ,35			2SA999(E,F)	TRANSISTOR	KPUUE	
Q36			2SC1740S(Q,R)	TRANSISTOR		
Q36			2SC945(A)(Q,P)	TRANSISTOR		
Q37			2SD1266	TRANSISTOR	KPUUE	
Q38 ,39			2SC2878(B)	TRANSISTOR	KPUUE	
Q40			2SC1740S(Q,R)	TRANSISTOR	KPUUE	
Q40			2SC945(A)(Q,P)	TRANSISTOR		
Q41 ,42		*	DTC144TFF	DIGITAL TRANSISTOR		
Q43			2SC2003(L,K)	TRANSISTOR		

## DISPLAY UNIT (X14-2320-10)

76	2B	A33-0101-04	REFLECTOR		KPUUE	
D58 ,59		B30-0431-05	LED(LN21CPH)		KPUUE	
D59		B30-0431-05	LED(LN21CPH)		E	
D66 -68		B30-0431-05	LED(LN21CPH)		KPUUE	
D67 ,68		B30-0431-05	LED(LN21CPH)		E	
PL1		B30-1239-05	LAMP		KPUUE	
C1		CEO4LW1V4R7M	ELECTRO	4.7UF	35WV	
C2 -8		CEO4LW1H010M	ELECTRO	1.0UF	50WV	
C9 ,10		CEO4LW1V100M	ELECTRO	10UF	35WV	
C11		CF92FV1H152J	MF	1500PF	J	
C12 -16		CC45FSL1H101J	CERAMIC	100PF	J	
C17		CEO4JW1A101M	ELECTRO	100UF	10WV	
C18		C91-0937-05	BACKUP	0.047F	5.5WV	
C19		CEO4JW1V2R2M	ELECTRO	2.2UF	35WV	
C20 ,21		CF92FV1H104J	MF	0.10UF	J	
C22 ,23		CF92FV1H153J	MF	0.015UF	J	

E: Scandinavia &amp; Europe K: USA P: Canada

U: PX(Far East, Hawaii) T: England M: Other Areas

UE: AAFES(Europe) X: Australia

▲ indicates safety critical components.

# PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格			Desti- nation 仕向	Re- marks 備考
C24 ,25			CF92FV1H393J	MF	0.039UF	J		
C26 ,27			CK45FB1H391K	CERAMIC	390PF	K		
C28 ,29			CF92FV1H272J	MF	2700PF	J		
C30 ,31			CF92FV1H102J	MF	1000PF	J		
C32 ,33			CF92FV1H682J	MF	6800PF	J		
C34			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C35 ,36			CEO4LW1V100M	ELECTRO	10UF	35WV	KPUUE	
C37			CEO4LW0J471M	ELECTRO	4.70UF	6.3WV	KPUUE	
C38			CEO4LW1A101M	ELECTRO	1000UF	10WV	KPUUE	
C39			CEO4LW0J471M	ELECTRO	4.70UF	6.3WV	KPUUE	
C40			CEO4LW1C101M	ELECTRO	100UF	16WV	KPUUE	
C41 -44			CEO4LW1H2R2M	ELECTRO	2.2UF	50WV	KPUUE	
C45 ,46			CEO4LW1V4R7M	ELECTRO	4.7UF	35WV	KPUUE	
C47 ,48			CC45FSL1H101J	CERAMIC	100PF	J	KPUUE	
C49			CK45FF1H103Z	CERAMIC	0.010UF	Z	KPUUE	
C51			CF92FV1H392J	MF	3900PF	J	KPUUE	
C52			CF92FV1H102J	MF	1000PF	J	KPUUE	
C53			CEO4LW1H010M	ELECTRO	1.0UF	50WV	KPUUE	
C54			CEO4LW1V4R7M	ELECTRO	4.7UF	35WV	KPUUE	
C55			CC45FSL1H101J	CERAMIC	100PF	J	KPUUE	
C56			CEO4LW1H010M	ELECTRO	1.0UF	50WV	KPUUE	
C57			CF92FV1H102J	MF	1000PF	J	KPUUE	
C58 ,59			CEO4LW1A221M	ELECTRO	220UF	10WV	KPUUE	
C60			CEO4LW1H010M	ELECTRO	1.0UF	50WV	KPUUE	
C61			CF92FV1H562J	MF	5600PF	J	KPUUE	
C62			CF92FV1H472J	MF	4700PF	J	KPUUE	
C63			CK45FB1H471K	CERAMIC	470PF	K	KPUUE	
C65			CEO4LW1H010M	ELECTRO	1.0UF	50WV	KPUUE	
C66			CEO4LW1C331M	ELECTRO	330UF	16WV	KPUUE	
C67			CEO4LW1A221M	ELECTRO	220UF	10WV	KPUUE	
C68			CEO4LW1HR33M	ELECTRO	0.33UF	50WV	KPUUE	
C69			CEO4LW1H0R1M	ELECTRO	0.1UF	50WV	KPUUE	
C70			CEO4LW1V100M	ELECTRO	10UF	35WV	KPUUE	
C71			CF92FV1H103J	MF	0.010UF	J	KPUUE	
C72			CF92FV1H473J	MF	0.047UF	J	KPUUE	
C73			CF92FV1H472J	MF	4700PF	J	KPUUE	
C74			CF92FV1H273J	MF	0.027UF	J	KPUUE	
C75			CK45FB1H471K	CERAMIC	470PF	K	KPUUE	
C76			CEO4LW1H010M	ELECTRO	1.0UF	50WV	KPUUE	
C77			CF92FV1H562J	MF	5600PF	J	KPUUE	
C78			CEO4LW1H010M	ELECTRO	1.0UF	50WV	KPUUE	
C79			CEO4LW1V100M	ELECTRO	10UF	35WV	KPUUE	
C80			CEO4LW1C101M	ELECTRO	100UF	16WV	KPUUE	
C81			CEO4LW1V100M	ELECTRO	10UF	35WV		
C82			CEO4LW1C470M	ELECTRO	47UF	16WV		
C83		*	CEO4LW1V4R7M	ELECTRO	4.7UF	35WV	UUE	
C84		*	CEO4LW1E471M	ELECTRO	470UF	25WV	KPE	
C84		*	CEO4LW1V102M	ELECTRO	1000UF	35WV	UUE	
C85		*	CEO4LW1C101M	ELECTRO	100UF	16WV	KPUUE	
C86		*	CEO4JW1H0R1M	ELECTRO	0.1UF	50WV		
CN5		*	E10-0509-05	FLAT CABLE CONNECTOR				
CN11		*	E10-3702-05	FLAT CABLE CONNECTOR				
CN12		*	E10-2605-05	FLAT CABLE CONNECTOR				
E3		*	E13-0487-05	PHONO JACK (MONITOR IN/OUT)			KPUUE	

E: Scandinavia &amp; Europe K: USA P: Canada

U: PX(Far East, Hawaii) T: England M: Other Areas

UE : AAFES(Europe) X: Australia

⚠ indicates safety critical components.

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
△ F1 F1 F1 F2	1C 1C 1C 1C		F05-6029-05 F06-2021-05 F06-3027-05 F05-2525-05	FUSE (UL) FUSE (SEMKO) (250V T2A) FUSE (UL) FUSE (SEMKO) (250V T2.5A)	KP E <u>UUE</u> E	
△ L1 T1 △ T1 △ T1 X1	1C 1C 1C 1C		L79-0312-05 L01-7651-05 L01-7652-05 L01-7658-05 L78-0209-05	LC FILTER POWER TRANSFORMER POWER TRANSFORMER POWER TRANSFORMER RESONATOR (4.194MHZ)	KPUUE KP E <u>UUE</u>	
CP1 CP3 CP4 CP5 CP6	*		R90-0482-05 R90-0492-05 R90-0483-05 R90-0806-05 R90-0465-05	MULTI-COMP 100KX4 J 1/6W MULTI-COMP 100KX8 J 1/6W MULTI-COMP 100KX13 J 1/6W MULTIPLE RESISTOR MULTI-COMP 100K13 J 1/6W		
R106 R128,129 R137 R138 R138			RD14GB2E470J RD14GB2E681J RD14GB2E101J RD14GB2E222J RD14GB2E392J	FL-PROOF RD 47 J 1/4W FL-PROOF RD 680 J 1/4W FL-PROOF RD 100 J 1/4W FL-PROOF RD 2.2K J 1/4W FL-PROOF RD 3.9K J 1/4W	KPUUE KPUUE KPUUE KPE <u>UUE</u>	
R150,151 R167 VR1 VR3			RD14GB2E470J R92-0173-05 R12-3126-05 R29-5019-05	FL-PROOF RD 47 J 1/4W RC 2.2M M 1/2W TRIMMING POT. (ADJ) POTENTIOMETER(SARROUND LEVEL)	KPUUE KP KPUUE KPUUE	
K1 S1 -6 S1 -70 S9 -54 S57 -70	1C		SS1-1052-05 S40-1064-05 S40-1064-05 S40-1064-05 S40-1064-05	MAGNETIC RELAY PUSH SWITCH(POWER,EQ/SPI,EXT) PUSH SWITCH(POWER,EQ/SPI,EXT) PUSH SWITCH(EQ.QN,EQ.REC,EXT) PUSH SWITCH(TUNE,VR,EXT)	E KPUUE E E	
△ S71			S31-2128-05	SLIDE SWITCH (POWER TYPE) AC	<u>UUE</u>	
D1 -15 D1 -15 D1 -17 D1 -17 D17			ISS133 ISS176 ISS133 ISS176 ISS133	DIODE DIODE DIODE DIODE DIODE	KPE KPE <u>UUE</u> <u>UUE</u> KPE	
D17 D19 D19 D20 -29 D20 -29			ISS176 ISS133 ISS176 ISS133 ISS176	DIODE DIODE DIODE DIODE DIODE	KPE E E <u>KPUUE</u> <u>KPUUE</u>	
D21 -29 D21 -29 D30 D30 D31 -40			ISS133 ISS176 HZS6.8N(B2) RD6.8ES(B2) ISS133	DIODE DIODE ZENER DIODE ZENER DIODE DIODE	E E <u>KPUUE</u>	
D31 -40 D31 ,32 D31 ,32 D41 -44 D41 -44			ISS176 ISS133 ISS176 DSM1A1 SS566B	DIODE DIODE DIODE DIODE DIODE	<u>KPUUE</u> E E KPE KPE	
D41 -46 D41 -46 D47 D47 D48 ,49			DSM1A1 SS566B HZS6.2N(B2) RD6.2ES(B2) ISS133	DIODE DIODE ZENER DIODE ZENER DIODE DIODE	<u>UUE</u> <u>UUE</u> <u>UUE</u> <u>UUE</u>	

E: Scandinavia & Europe K: USA P: Canada  
 U: PX(Far East, Hawaii) T: England M: Other Areas  
UE: AAFES(Europe) X: Australia

△ indicates safety critical components.

# PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
D48 ,49			ISS176	DIODE		
D50			DSM1A1	DIODE		
D50			S5566B	DIODE		
D51 ,52			ISS133	DIODE		
D51 ,52			ISS176	DIODE		
D54 -57			ISS133	DIODE		
D54 -57			ISS176	DIODE		
D60 -65			ISS133	DIODE		
D60 -65			ISS176	DIODE		
D69 ,70			ISS133	DIODE		
D69 ,70			ISS176	DIODE		
D71 ,72			HZS8.2N(B2)	ZENER DIODE		
D71 ,72			RDB.2ES(B2)	ZENER DIODE		
FL1	*	*	BG-526GK	FLUORESCENT INDICATOR TUBE		
IC1			UPD75108CW-200	IC(MICROPROCESSOR)		
IC2			UPD6300C	IC(FL LATCH DRIVER)		
IC3			LC7565	IC(GRAPHIC EQ FL DISPLAY DR)		
IC4 -7			UPA80C	IC(7CH TRANSISTOR ARRAY)		
IC8 ,9			UPC4574C	IC(NP AMP X4)		
IC10			UPD4081BC	IC(AND X4)		
IC11			MN3101	IC(BBD CLOCK DRIVER)	KPUUE	
IC12			MN3007	IC(BBD)	KPUUE	
IC13			NE645N	IC(DOLBY B PROCESSOR)	KPUUE	
IC14			PST529C	IC(SYSTEM RESET)		
IC15-18			NJM4558D	IC(NP AMP X2)	KPUUE	
Q1 ,2			2SC1740S(Q,R)	TRANSISTOR		
Q1 ,2			2SC945(A)(Q,P)	TRANSISTOR		
Q3			2SA999(E,F)	TRANSISTOR		
Q9 ,10			2SD1266	TRANSISTOR		
Q10			2SD1266	TRANSISTOR	KPUUE	
Q11			2SC1740S(Q,R)	TRANSISTOR	KPUUE	
Q11			2SC945(A)(Q,P)	TRANSISTOR	KPUUE	
Q12			2SA954(L,K)	TRANSISTOR	KPUUE	
Q13			2SC2003(L,K)	TRANSISTOR	KPE	
Q13			2SD1266	TRANSISTOR	KPE	
Q14 -17			DTC114EFF	DIGITAL TRANSISTOR	KPUUE	
Q15			DTC114EFF	DIGITAL TRANSISTOR	E	
Q17			DTC114EFF	DIGITAL TRANSISTOR	E	
Q18			2SA999(E,F)	TRANSISTOR	KPUUE	
E1	3B		W02-0776-05	ELECTRIC CIRCUIT MODULE		
<b>EQUALIZER UNIT (X85-1120-10)</b>						
C1 ,2			CE04LW1H010M	ELECTRO	1.0UF	50WV
C3 ,4			CK45FB1H471K	CERAMIC	470PF	K
C5 ,6			CE04LW1H010M	ELECTRO	1.0UF	50WV
C7 ,8			CE04LW1H2R2M	ELECTRO	2.2UF	50WV
C9 ,10			CF92FV1H124J	MF	0.12UF	J
C11 ,12			CE04LW1H010M	ELECTRO	1.0UF	50WV
C13 ,14			CF92FV1H473J	MF	0.047UF	J
C15 ,16			CE04LW1HR33M	ELECTRO	0.33UF	50WV
C17 ,18			CF92FV1H183J	MF	0.018UF	J
C19 ,20			CF92FV1H124J	MF	0.12UF	J
C21 ,22			CF92FV1H822J	MF	8200PF	J
C23 ,24			CF92FV1H563J	MF	0.056UF	J
C25 ,26			CF92FV1H272J	MF	2700PF	J

E: Scandinavia &amp; Europe K: USA P: Canada

U: PX(Far East, Hawaii) T: England M: Other Areas

UE: AAFES(Europe) X: Australia

△ indicates safety critical components.

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnes dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
C27 ,28 C29 ,30 C31 ,32 C33 ,34 C35			CF92FV1H183J CF92FV1H152J CF92FV1H822J CK45FB1H471K CED4LW1V4R7M	MF MF MF CERAMIC ELECTRO	0.018UF J 1500PF J 8200PF J 470PF K 4.7UF 35WV	
D1 D1 IC1 IC2 ,3			HZS6.8N(B2) RD6.8ES(B2) LC7522 MS229P	ZENER DIODE ZENER DIODE IC(7CH GRAPHIC EQUALIZER) IC(7CH GRAPHIC EQUALIZER)		
<b>FM FRONT-END ASS'Y (W02-0699-05) : KPUUE</b>						
D1 -3 TR1 TR2 ,3 TR4			1SV110 2SK439 2SC3391 2SC3494	DIODE TRANSISTOR TRANSISTOR TRANSISTOR		
<b>FM FRONT-END ASS'Y (W02-0700-05) : E</b>						
D1 -4 TR1 TR2 ,3 TR2 ,3 TR4  TR5 TR5			1SV110 3SK85 2SC3391 2SC535 2SC2839  2SK241 2SK439	DIODE TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR  TRANSISTOR TRANSISTOR		

E: Scandinavia & Europe    K: USA    P: Canada  
 U: PX(Far East, Hawaii)    T: England    M: Other Areas  
UE: AAFES(Europe)    X: Australia

△ indicates safety critical components.